20" Autoscan Colour Monitor

Chassis

CM5600

Service
Service
Service

ServiceManual

Horizontal frequencies
30 to 82 kHz

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PCS 74 360

PHILIPS

1. Technical data

General

Mains voltage	: 90 - 264 V
Mains frequency	: 50 / 60 Hz
Power consumption	: 110 W (normal) 125 W (max.)
Operating temperature	: 0°C to 40°C
Weight	: 31.5 kg
Width x Depth x Height	: 498 x 535 x 427 mm
Video signal	: 0.7Vp-p 75 Ω

Sync. signal

- separate sync.	: TTL-level
- composite sync.	: TTL-level
- composite sync.	: on Green

Picture tube

Size	: 20 inch, 90 degree deflection
Light transmission	: 52.0 %, black matrix
EHT voltage	: 25 kVolt
Pitch	: 0.28 mm
Phosphor	: EBU Medium short

Video

Dot rate	: 135 MHz
Visible screen within mask area	: 350 mm x 270 mm
Vertical frequency	: 50 - 120 Hz
Vertical sync. polarity	: positive or negative
Vertical shift range	: 10 mm Min.
Horizontal frequency	: 30 to 82 kHz
Horizontal sync. polarity	: positive or negative
Horizontal shift	: 30 mm Min.

Geometry distortion

Pincushion, barrel	: Horizontal 3 mm Max. : Vertical 3 mm Max.
Horizontal tilt (rotation)	: 2,5 mm Max.
Non-linearity	: ≤ 7% (31.5/35.2/35.5/37.8/56.0/64.0/77.1/81.1kHz) : ≤ 6% (other modes)

* specifications are subject to change without notice

Power Management Definition					
VESA DPMS				POWER SAVING STATES	
MODE	**VIDEO**	**H-SYNC**	**V-SYNC**	**POWER USED**	**POWER SAVING (%)**
ON	Active	Yes	Yes	110 Watts	0%
Stand-by	Blanked	No	Yes	< 15 Watts	> 86%
Suspend	Blanked	Yes	No	< 15 Watts	> 86%
OFF	Blanked	No	No	< 5 Watts	> 95

Note: The video will be blanked and the power LED color will change into follwing colors whenever the monitor goes into power management status.

Green LED light - "Normal" operation.
Yellow LED light - "Stand-by " or "Suspend" mode.
Amber LED light - "OFF" mode.

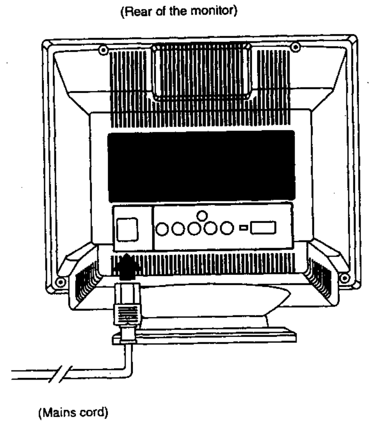
This monitor is Energy Star compliant when used with a computer equipped with DPMS.
PHILIPS is a partner in the EPA's Energy Star Computer Program.

Resolution modes and sync polarities.

(factory pre-set mode table)						
			Frequency		Sync Polarity	
	Mode	Resolution	h(kHz)	V(Hz)	H	V
M01	VGA	640 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.5	60	-	-
M03	MAC II	640 x 480	35.0	66.7	Composite sync. on green	
M04	SVGA	800 x 600	35.2	56	+/-	+/-
M05	SVGA	800 x 600	37.8	60	+	+
M06	SVGA	800 x 600	48.0	72	+	+
M07	QUADRA	832 x 624	49.7	75	-	-
M08	8514A	1024 x 768	35.5	87	+	+
M09		1024 x 768	56.0	70	+/-	+/-
M10		1280 x 1024	64.0	60	Composite sync. on green	
M11		1280 x 1024	77.1	73	Composite sync. on green	
M12		1280 x 1024	81.1	76	Composite sync. on green	

2. Control locations and connection facilities

Connection to the mains



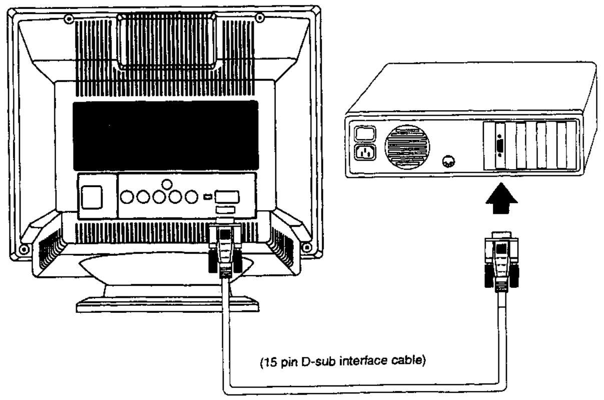
Connecting to the mains
This monitor is set to operate at a mains supply of 100-240 volts AC, ±10%, 50-60 Hz. If the mains voltage in your home is different from this, consult your dealer. Connect one end of the mains cord to the mains socket at the rear of monitor, and the other end to the mains supply.

Connection to the computer

NOTE: Please be sure the AC power to your computer is "OFF" before connecting or disconnecting any display peripheral. Failure to do so may cause serious personal injury as well as permanent damage to your computer equipments.

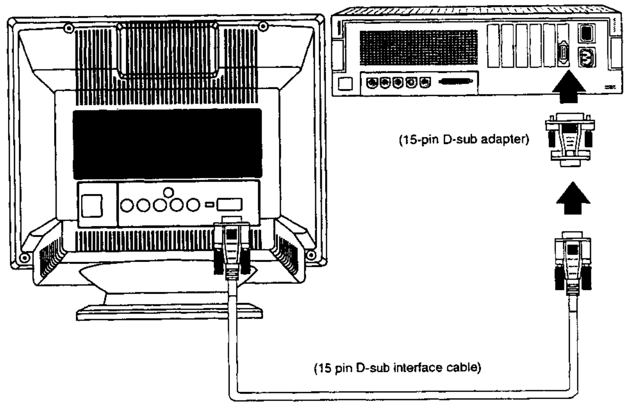
1, IBM PC, PC/XT, PC/AT, PS/2 , or the compatibles:

- Make sure the **"D-SUB/BNC"** switch on the front of the monitor is on the 'D-sub' position.
- Connect one end of the 15-pin D-sub interface cable to the D-sub connector at the rear of monitor.
- Connect the other end to the computer at the video connector on the video adapter, and fix it firmly with the screws on the plug.



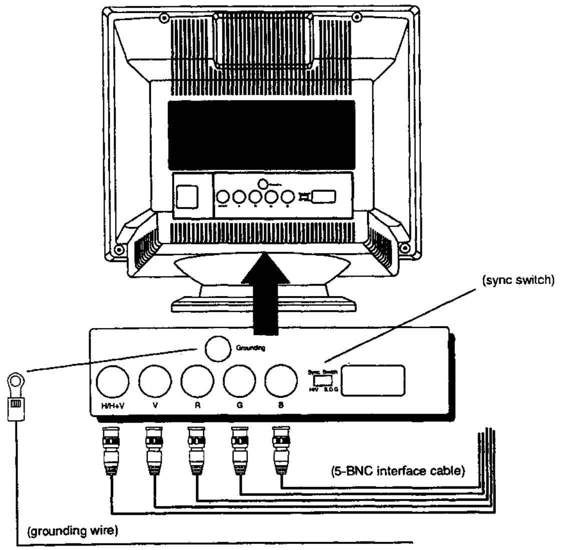
2. Apple QUADRA family:

- Make sure the **"D-SUB/BNC"** on the front of the monitor is on the 'D-sub' position.
- Connect one end of the 15-pin D-sub interface cable to the D-sub connector at the rear of the monitor.
- Connect the 15-pin D-sub adapter to the interface cable.
- Connect the 15-pin D-sub adapter to the computer at the video connector on the video card.
- Fix both connectors firmly with the screws on the plugs.
- The "sync" switch is set at "separate" position in the factory. If you are using sync-on-green modes, please set the switch at "S.O.G.". If you are using H,V separate or H+V composite modes, please set the switch at "H/V".

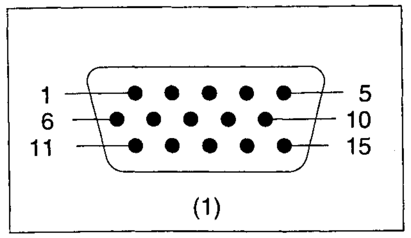


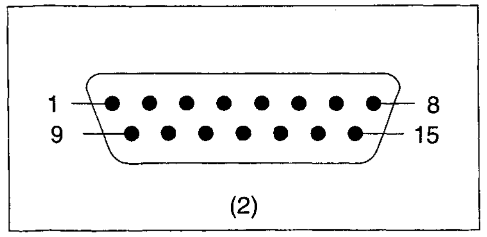
3. Computer with video adapter of BNC connector:

- Make sure the **"D-SUB/BNC"** on the front of the monitor is on the 'BNC' position.
- Connect your BNC cable according to the BNC connector assignment at the rear of the monitor.
- Connect the ground wire to the "grounding" connector at the rear of the monitor, and fix it firmly with screw driver.
- The "sync" switch is set at "H/V" in the factory. If you are using sync-on-green (3 BNC) modes, please set the switch at "S.O.G.". If you are using H, V separate (5 BNC) or H+V composite (4 BNC) modes, please set the switch at "H/V".



Pin assignment :





(1) The 15-pin D-sub connector (male) of the cable (IBM systems)

Pin No.	Assignment		Pin No.	Assignment
1	Red video input		8	Blue video ground
2	Green video input		9	No pin
3	Blue video input		10	Logic ground
4	Identical output -connected to pin 10		11	Identical ground -connected to pin 10
5	Ground		12	No pin
6	Red video ground		13	H. Sync / H+V
7	Green video ground		14	V. Sync
			15	No pin

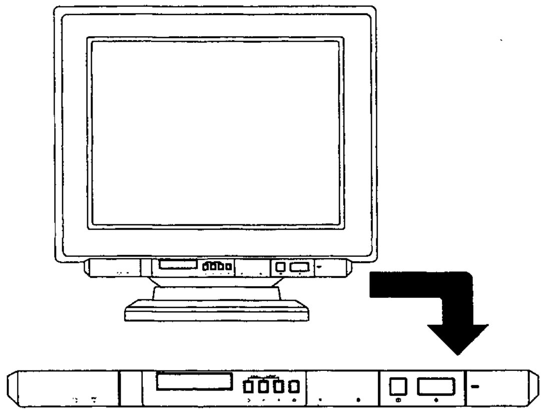
(2) The 15-pin D-sub connector(male) of the adapter (Apple Macintosh systems)

Pin No.	Assignment		Pin No.	Assignment
1	Red ground		9	Blue video
2	Red video		10	Sence 2
3	Composite Sync, H+V		11	Composite Sync & V.Sync ground
4	Sense 0		12	V. Sync
5	Green video / sync on green		13	Blue ground
6	Green ground		14	H. Sync ground
7	Sence 1		15	H. Sync
8	Not connected			

* Because of a policy of continuous product improvement, the above specifications are subject to change without notice

Control locations

Control locations and functions



(descriptions are from right to left)

⏻ POWER

- Press this knob, the power indication LED lights and the power is ON.
- Press this knob, the power indication LED disappears and the power is OFF.

◫ DEGAUSS.

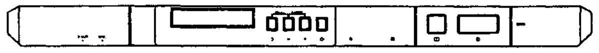
- Press this knob to eliminate the colour impurity.

◑ CONTR.

- Used to adjust contrast.

☼ BRIGHT.

- Used to adjust brightness.



(Descriptions are from left to right)

"D-SUB" / "BNC"

- Switch to "D-SUB" position, when the monitor is connected with a D-sub interface cable.
- Switch to "BNC" position, when the monitor is connected with a BNC interface cable.

◇ SELECT

- Press this knob to select the adjustment item which is displayed oh the LCD panel in the following order

a)	SET H-SHIFT	: to adjust the image position horizontally
b)	SET H-SIZE	: to adjust the image width
c)	SET V-SHIFT	: to adjust the image position vertically
d)	SET V-SIZE	: to adjust the image height
e)	SET PIN/BARREL	: to adjust the image geometry
f)	SET TRAPEZOID	: to adjust the image geometry
g)	-(CURSOR)	: to access LCD display characters (for user-set mode only)

" + " and " - "

● (adjustment a-f)	: *Press " + " or " - " to adjust the respective magnitude.
● (adjustment g)	: *Press " + " to access characters (space 0,1,...9, A, B, ...Z) *Press " - " to access character , in backward order. *Press " + " and " - " simultaneously to move the cursor.

▷ SAVE

- Press this knob to save the result of the adjustment.

Connection facilities

Adjustment

This monitor is pre-set with 12 modes as indicated in the following table:

(factory pre-set mode table)

	Mode.	Resolution	Frequency		Sync Polarity	
			H(KHZ)	V(HZ)	H	V
M01	VGA	640x400	31.5	70	-	+
M02	VGA	640x480	31.5	60	-	-
M03	MAC II	640x480	35.0	66.7	Composite sync on green	
M04	SVGA	800x600	35.2	56	+/-	+/-
N05	SVGA	800x600	37.8	60	+	+
M06	SVGA	800x600	48.0	72	+	+
M07	QUADRA	832x624	49.7	75	-	-
M08	8514A	1024x768	35.5	87	+	+
M09		1024x768	56.0	70	+/-	+/-
M10		1280x1024	64.0	60	Composite sync on green	
M11		1280x1024	77.1	73	Composite sync on green	
M12		1280x1024	81.1	76	Composite sync on green	

For video adapter in line with factory preset mode
e.g 1024x768 56.0KHz/70Hz

A) **M01 - M12 (factory pre-set mode)**

* Press knob ⏻ to switch on the monitor.
* The LCD panel will display the default mode e.g.

M09 1024x768 70

* The image will be in right size (H+V) , centering and geometry.

B) **M13 - M24**

* M13-M24 is preserved for any **adjustment** of factory pre-set mode (M01-M12).
If you are not satisfied with the image result of factory pre-set mode, you may adjust it according to the following procedure :

* Press knob ⏻ to switch on the monitor.
* The LCD panel will display the default mode e.g.

M09 1024x768 70

* Press knob ◇ to select the adjustment item.
* Press " + " or " - " to adjust the magnitude.
* Press knob ▷ to save the result of adjustment.
* The LCD panel will display immediately e.g.

M21 1024x768 70

For non-standard video adapter e.g. 1024x768 72 Hz:

M25-M27

* Press power knob ⏻ to switch on the monitor.
* The LCD panel will display :

New Mode

* Press knob ◇ to select the adjustment item.
* Press " + " or " - " to adjust the magnitude.
* Press " + " or " - " to access LCD display character.
* Press knob ▷ to save all adjustments, the LCD will display immediately e.g.

M25 1024x768 72 or

M25 (resolution and refresh rate will not display if not registered by CURSOR adjustment)

✻ You may save by press knob ▷ after each adjustment, or you may do it after all the adjustments are completed; however the latter is recommended.

✻ The LCD display will revert to default if the user does not press ▷ to save the adjustment result after 30 seconds. However the adjusted configuration will remain exist until power off, but not be memorized.

✻ The **RECALL** function :
You may erase the current-used user mode by pressing and holding the knobs "◇ " and " - " simultaneously for 2 seconds. The letter RECALL will display on the LCD.

✻ To enable automatic power saving function, the monitor must work with a display card that complies with VESA (Video Electronics Standard Association), DPMS (Display Power Management Signalling) standards.

3. Warnings and notes

Warnings

1. Safety regulations require that the unit should be returned in its original conditions and that components identical to the original components are used.
   The safety components are indicated by the symbol ⚠

2. In order to prevent damage to **ICs** and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approx. 30s).

3. **ESD** ⚠
   All **ICs** and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten the life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the earth of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the mains voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that safety goggles are worn when replacing the picture tube.

7. When making settings, use plastic rather than metal tools. This will prevent any short-circuit and the danger of a circuit becomes unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the deflection unit the picture tube is used as an integrated unit. Adjustment of this unit during repair is therefor not recommended.

10. After repair the wiring should be fastened once more in the cable clamps for this purpose.

Notes

1. The direct voltages and oscillograms are average voltages.
   They have been measured by using the Service test software and under the following conditions:
   - Signal pattern: grey scale
   - Mode: 56.0kHz/70Hz 1024*768
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps.
   Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

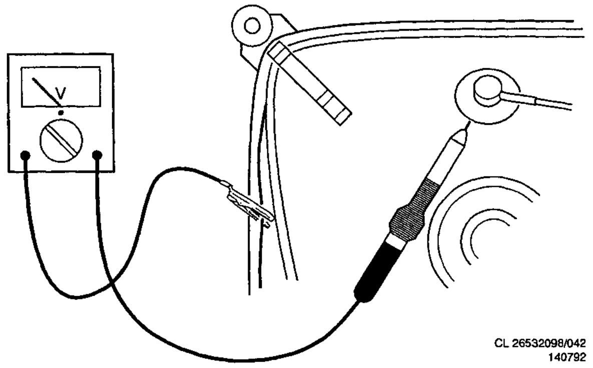


Fig. 3.1

4. Mechanical instructions

Location of the Panels (see Fig. 4.1)

1. Sync + Deflection + Supply panel (1101)
2. Video panel (1103)
3. Input + Terminal panel (1104)
4. Digital panel (1102)
5. Emi panel (1105)
6. Key + Control panel (1106)
7. LCD panel (1108)
8. Power indicator panel (1107)
9. Power down panel

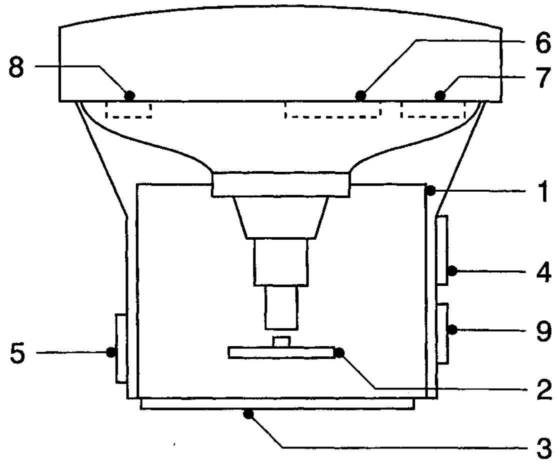


Fig. 4.1

General
To be able to perform measurements and repairs on the "circuit boards", the monitor should placed in the service position first:

1. Remove the back cover by 4 screws.
2. Remove the metal shielding by 12 screws.
3. Remove the metal cover for the "EMI-panel" (if necessary by 6 screws)
4. Turn the set 90 Degree counter-clockwise (see Fig. 4.2).
5. Remove the pedestal with the metal shielding by 4 screw and 2 plastic clamps.
6. Remove the "Digital panel" by 1 screw and remount this panel on a specified slot which is existing on the metal frame (see Fig. 4.3).
7. Remove the "Input + Terminal panel" by 5 screws, then stand-up the "Input + Terminal panel" between the metal frame and the work bench.
8. Connect an "extension cable (4822 321 61504) for the connection between the "EMI-panel" and the "Input + Terminal panel".

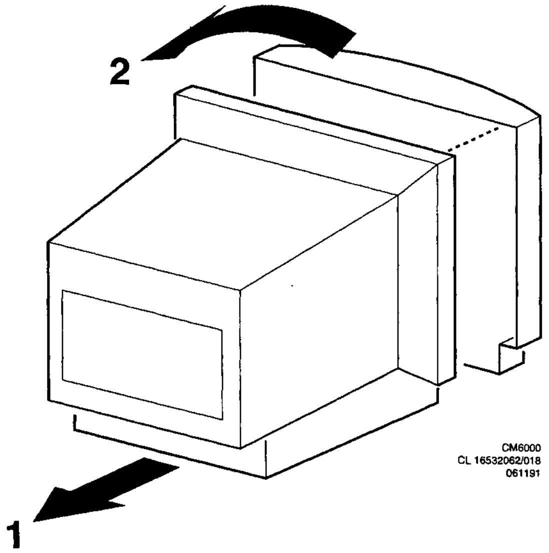


Fig. 4.2

Repair instructions

1. Sync + Deflection + Supply panel
   - Place the set into the Service position.
   - Remove the "Sync + Deflection + Supply panel" by 4 screws.
   - Isolate the "HOT ground" (on the power supply circuit) and the "Command ground" (on the metal frame).
   - Before switching on the set, connect the set to an isolating transformer.

2. Video panel
   - Place the set into the Service position.
   - De-solder 3 soldering joints (shielding) of the solder side of the panel.
   - Remove the shielding on the solder side.
   - De-solder 10 soldering joints 9 shielding) on the component side of the panel.
   - Remove the shielding on the component side.

3. Input + Terminal panel
   - Place the set into the Service position.
   - Remove 2 screws (on the 15 pins "D" Shell connector).
   - Remove 2 fixing screws.
   - De-solder 10 soldering joints (BNC-socket).
   - Remove the metal bracket.

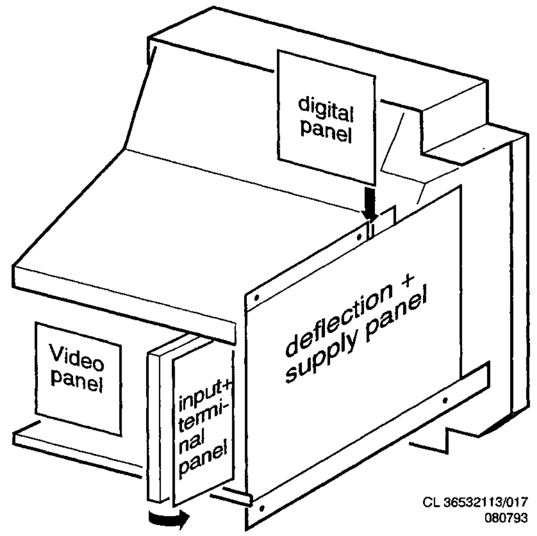
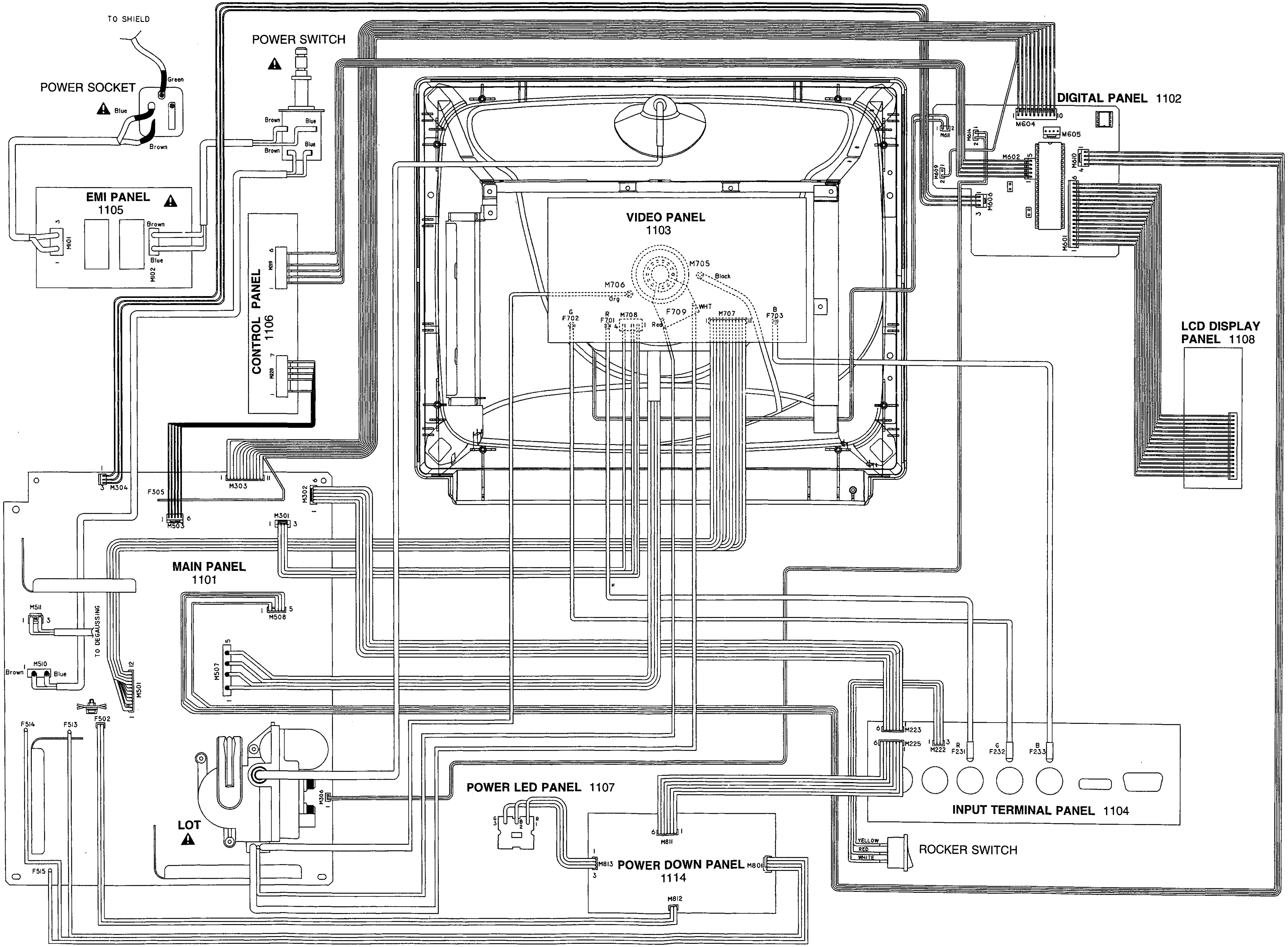


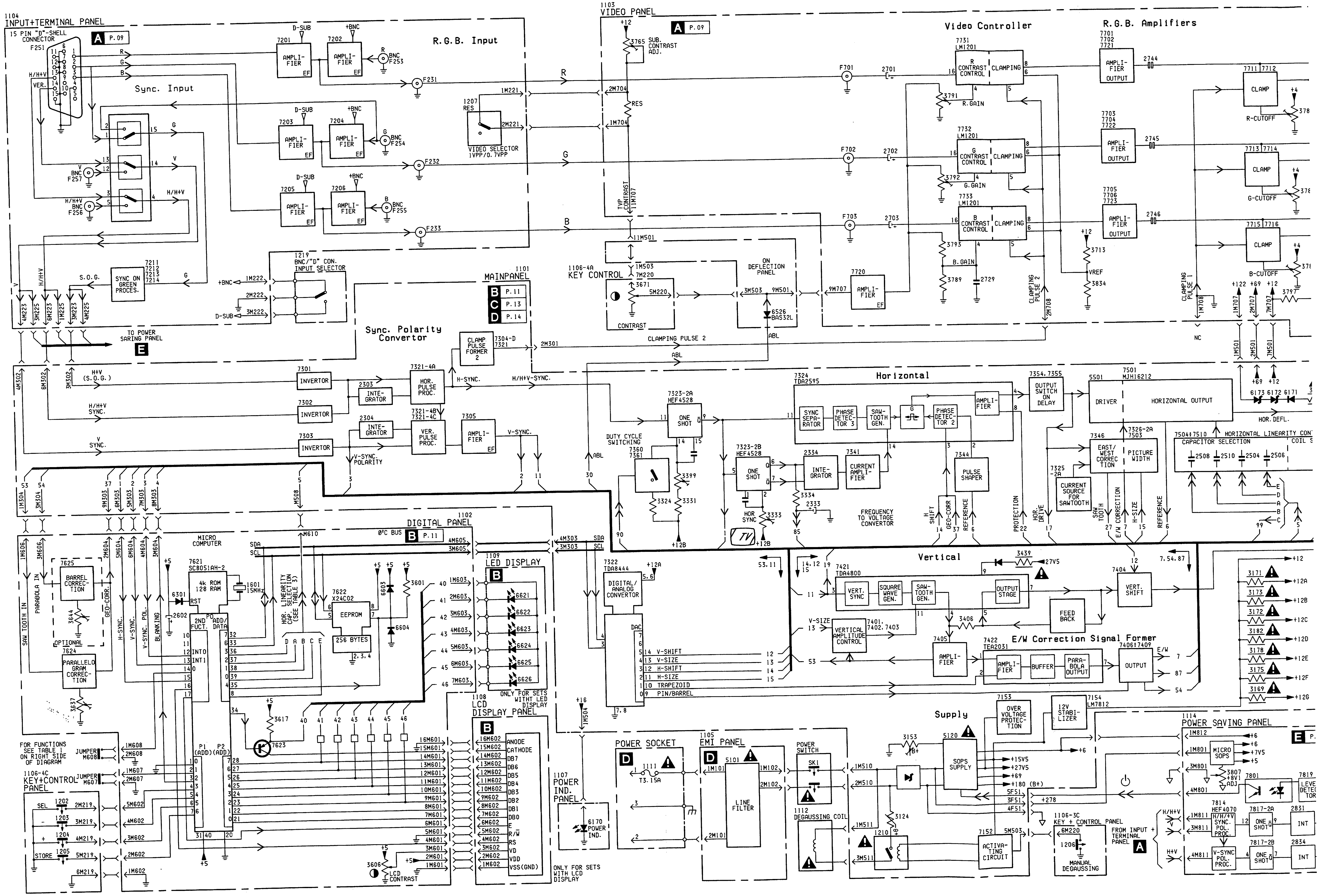
Fig. 4.3

5. Wiring diagram


TO SHIELD
Green
POWER SOCKET
Blue
Brown
POWER SWITCH
Brown
Blue
Brown
Blue
EMI PANEL
1105
M101
Brown
Blue
M102
CONTROL PANEL 1106
M219
M220
DIGITAL PANEL 1102
M604
M605
M611
M614
M602
M610
M609
M606
M601
VIDEO PANEL
1103
M705
Black
M706
Org
F709
WHT
G
F702
R
F701
M708
Red
M707
B
F703
LCD DISPLAY PANEL 1108
M304
F305
M303
M302
M503
M301
MAIN PANEL
1101
M511
M508
TO DEGAUSSING
M510
Brown
Blue
M507
M501
F514
F513
F502
F515
LOT
M306
POWER LED PANEL 1107
G
R
M811
M813
POWER DOWN PANEL
1114
M801
M812
M223
M225
M222
R
F231
G
F232
B
F233
INPUT TERMINAL PANEL 1104
YELLOW
RED
WHITE
ROCKER SWITCH

Block diagram

Block diagram


1104
INPUT+TERMINAL PANEL
15 PIN "D"-SHELL CONNECTOR
F251
A P.09
R.G.B. Input
Sync. Input
D-SUB
+BNC
7201
7202
7203
7204
7205
7206
AMPLI-FIER
BNC F253
BNC F254
BNC F255
F231
F232
F233
V BNC F257
H/H+V BNC F256
1207 RES
VIDEO SELECTOR 1VPP/0.7VPP
1M221
2M221
S.O.G.
SYNC ON GREEN PROCES.
7211 7212 7213 7214
1219 BNC/"D" CON. INPUT SELECTOR
1M222
2M222
3M222
TO POWER SARING PANEL
E
1101
MAINPANEL
B P.11
C P.13
D P.14
Sync. Polarity Convertor
CLAMP PULSE FORMER 2
7304-D 7321
2M301
7301 INVERTOR
7302 INVERTOR
7303 INVERTOR
2303 INTE-GRATOR
2304 INTE-GRATOR
7321-4A HOR. PULSE PROC.
7321-4B 7321-4C VER. PULSE PROC.
7305 AMPLI-FIER
H-SYNC.
H/H+V-SYNC.
V-SYNC.
V-SYNC. POLARITY
H+V (S.O.G.)
H/H+V SYNC.
V SYNC.
1103
VIDEO PANEL
A P.09
3765 SUB. CONTRAST ADJ.
2M704
1M704
RES
1M501
1106-4A
KEY CONTROL
1M503 7M220
3671
5M220
CONTRAST
ON DEFLECTION PANEL
3M503
9M501
6526 BAS32L
ABL
CLAMPING PULSE 2
Video Controller
7731 LM1201
7732 LM1201
7733 LM1201
R CONTRAST CONTROL
G CONTRAST CONTROL
B CONTRAST CONTROL
CLAMPING
3791 R.GAIN
3792 G.GAIN
3793 B.GAIN
3789
2729
F701
F702
F703
2701
2702
2703
7720 AMPLI-FIER
9M707
R.G.B. Amplifiers
7701 7702 7721
7703 7704 7722
7705 7706 7723
AMPLI-FIER OUTPUT
2744
2745
2746
CLAMP
R-CUTOFF
G-CUTOFF
B-CUTOFF
3713
VREF
3834
CLAMPING PULSE 2
CLAMPING PULSE 1
NC
Horizontal
7324 TDA2595
SYNC SEPA-RATOR
PHASE DETEC-TOR 3
SAW-TOOTH GEN.
PHASE DETEC-TOR 2
AMPLI-FIER
7354, 7355 OUTPUT SWITCH ON DELAY
5501 DRIVER
7501 MJH16212 HORIZONTAL OUTPUT
HOR. DEFL.
7323-2A HEF4528 ONE SHOT
DUTY CYCLE SWITCHING 7360 7361
3399 3324 3331
7323-2B HEF4528 ONE SHOT
HOR SYNC 3333
3334 2333
2334 INTE-GRATOR
7341 CURRENT AMPLI-FIER
7344 PULSE SHAPER
FREQUENCY TO VOLTAGE CONVERTOR
7346 EAST/WEST CORREC TION
7326-2A 7503 PICTURE WIDTH
7325-2A CURRENT SOURCE FOR SAWTOOTH
7504÷7510 HORIZONTAL LINEARITY CAPACITOR SELECTION
2508 2510 2504 2506
PROTECTION
HOR. DRIVE
SAW TOOTH
E/W CORRECTION
H-SIZE
REFERENCE
H SHIFT
GEO-CORR.
1102
DIGITAL PANEL
I²C BUS
B P.11
MICRO COMPUTER
7621 SC8051AH-2
4k ROM 128 RAM
1601 15MHz
6301 RST
2602
2ND FUCT.
P0 ADD/DATA
INT0 INT1
7622 X24C02 EEPROM 256 BYTES
HOR. LINEARITY CAP. SELECTION (SEE TABLE 3)
7625 BARREL CORREC-TION
3644
OPTIONAL 7624 PARALLELO GRAM CORREC-TION
3637
SAW TOOTH IN
PARABOLA IN
GEO-CORR.
H-SYNC.
V-SYNC.
V-SYNC. POL.
BLANKING
SDA SCL
1109 LED DISPLAY
B
6621 6622 6623 6624 6625 6626
ONLY FOR SETS WITH LED DISPLAY
1108 LCD DISPLAY PANEL
B
ANODE CATHODE DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 E R/W RS VD VDD VSS(GND)
ONLY FOR SETS WITH LCD DISPLAY
3606 LCD CONTRAST
7623
3617
FOR FUNCTIONS SEE TABLE 1 ON RIGHT SIDE OF DIAGRAM
JUMPER M608
JUMPER M607
1106-4C KEY+CONTROL PANEL
SEL 1202
- 1203
+ 1204
STORE 1205
1107 POWER IND. PANEL
6170 POWER IND.
7322 TDA8444 DIGITAL/ANALOG CONVERTOR
V-SHIFT V-SIZE H-SHIFT H-SIZE TRAPEZOID PIN/BARREL
Vertical
7421 TDA4800
VERT. SYNC
SQUARE WAVE GEN.
SAW-TOOTH GEN.
OUTPUT STAGE
FEED BACK
7404 VERT. SHIFT
3439 27V5
V-SIZE
VERTICAL AMPLITUDE CONTROL 7401, 7402, 7403
7405 AMPLI-FIER
3406
E/W Correction Signal Former
7422 TEA2031
AMPLI-FIER
BUFFER
PARA-BOLA OUTPUT
7406÷7409 OUTPUT
E/W
Supply
7153 OVER VOLTAGE PROTEC-TION
7154 LM7812 12V STABI-LIZER
1105 POWER SOCKET D
1111 T3.15A
EMI PANEL D
5101 LINE FILTER
POWER SWITCH SK1
1112 DEGAUSSING COIL
1210
3124
3153
5120
SOPS SUPPLY
+15V5 +27V5 +69 +180 (B+) 5F51 3F51 4F51 +278
7152 5M503 ACTIVA-TING CIRCUIT
1106-3C KEY + CONTROL PANEL 6M220 1206 MANUAL DEGAUSSING
FROM INPUT + TERMINAL PANEL A
1114 POWER SAVING PANEL
E
MICRO SOPS
3807
7801
7819 LEVEL DETECTOR
7814 HEF4070 H/H+V SYNC. POL. PROC.
7817-2A ONE SHOT
2831 INT
V-SYNC POL. PROC.
7817-2B ONE SHOT
2834 INT
3171 3173 3172 3182 3178 3175 3169
+12A +12B +12C +12D +12E +12F +12G
3797

Block diagram

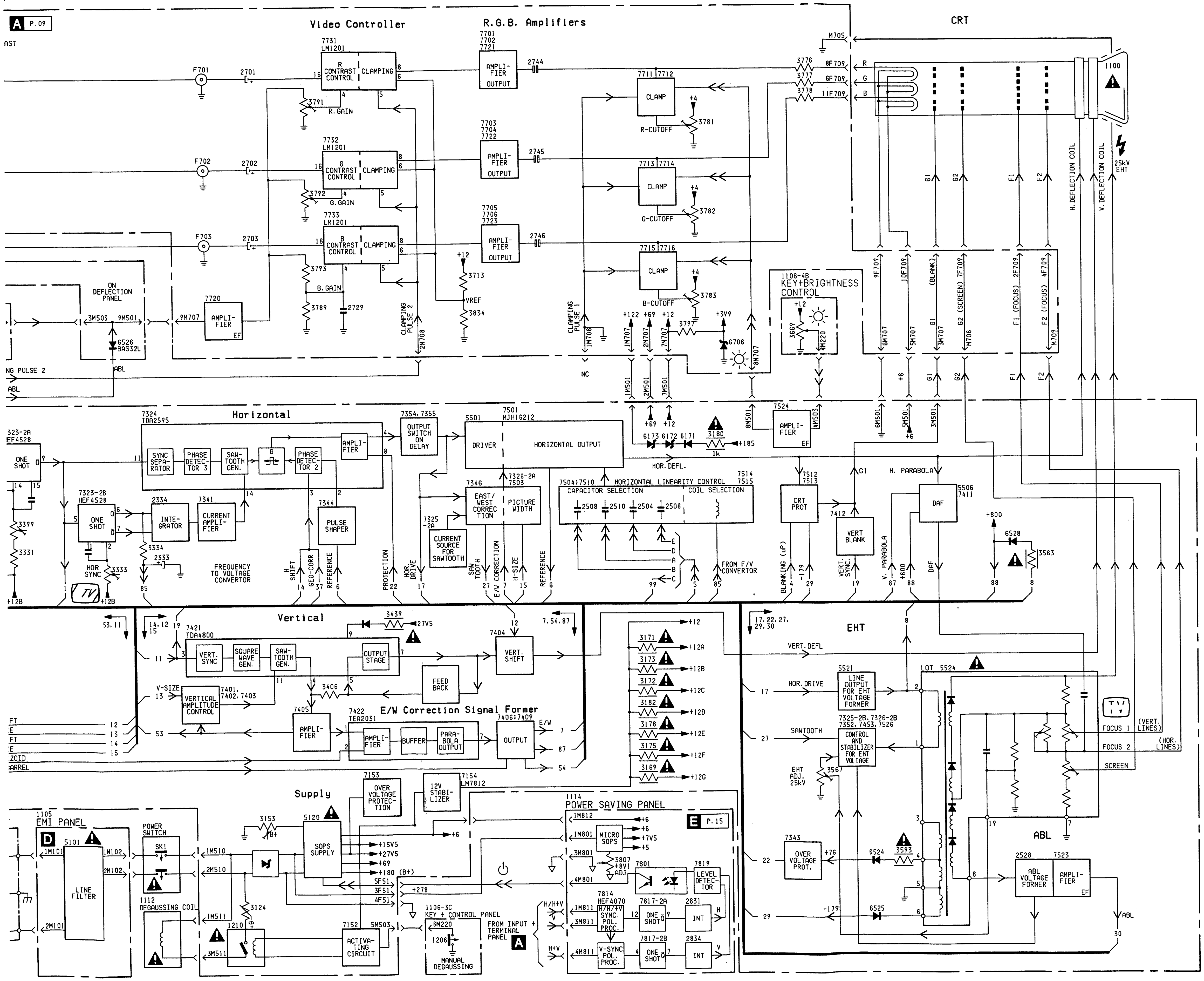

A P.09
Video Controller
R.G.B. Amplifiers
CRT
7731 LM1201
R CONTRAST CONTROL
CLAMPING
7732 LM1201
G CONTRAST CONTROL
7733 LM1201
B CONTRAST CONTROL
R.GAIN
G.GAIN
B.GAIN
AMPLI-FIER OUTPUT
CLAMP
R-CUTOFF
G-CUTOFF
B-CUTOFF
1106-4B KEY+BRIGHTNESS CONTROL
1100
25kV EHT
H.DEFLECTION COIL
V.DEFLECTION COIL
G1
G2
F1
F2
ON DEFLECTION PANEL
CLAMPING PULSE 2
CLAMPING PULSE 1
VREF
ABL
Horizontal
7324 TDA2595
SYNC SEPA-RATOR
PHASE DETEC-TOR 3
SAW-TOOTH GEN.
PHASE DETEC-TOR 2
AMPLI-FIER
7354, 7355 OUTPUT SWITCH ON DELAY
7501 MJH16212
DRIVER
HORIZONTAL OUTPUT
HOR. DEFL.
7346 EAST/WEST CORRECTION
PICTURE WIDTH
7504÷7510 HORIZONTAL LINEARITY CONTROL 7514 7515
CAPACITOR SELECTION
COIL SELECTION
FROM F/V CONVERTOR
CRT PROT
VERT BLANK
DAF
H. PARABOLA
ONE SHOT
INTE-GRATOR
CURRENT AMPLI-FIER
PULSE SHAPER
CURRENT SOURCE FOR SAWTOOTH
HOR SYNC
FREQUENCY TO VOLTAGE CONVERTOR
Vertical
7421 TDA4800
VERT. SYNC
SQUARE WAVE GEN.
SAW-TOOTH GEN.
OUTPUT STAGE
FEED BACK
VERT. SHIFT
VERTICAL AMPLITUDE CONTROL
E/W Correction Signal Former
7422 TEA2031
AMPLI-FIER
BUFFER
PARA-BOLA OUTPUT
OUTPUT
EHT
VERT. DEFL
HOR. DRIVE
SAWTOOTH
EHT ADJ. 25kV
5521 LINE OUTPUT FOR EHT TRANSFORMER
CONTROL AND STABILIZER FOR EHT VOLTAGE
LOT 5524
OVER VOLTAGE PROT.
FOCUS 1
FOCUS 2
SCREEN
(VERT. LINES)
(HOR. LINES)
ABL
ABL VOLTAGE FORMER
Supply
1105 EMI PANEL
D
LINE FILTER
POWER SWITCH
1112 DEGAUSSING COIL
SOPS SUPPLY
OVER VOLTAGE PROTECTION
12V STABILIZER
ACTIVA-TING CIRCUIT
1106-3C KEY + CONTROL PANEL
MANUAL DEGAUSSING
FROM INPUT + TERMINAL PANEL
1114 POWER SAVING PANEL
E P.15
MICRO SOPS
LEVEL DETECTOR
SYNC. POL. PROC.
V-SYNC POL. PROC.
ONE SHOT
INT

TABLE 1

FUNCTION	M207	M208
FACTORY DEF. PROT.	OPEN	OPEN
PICTURE SIZE ADJ. FOR FAC. DEF.	OPEN	OPEN
IC76210 (UP) NO FUNCTION	CLOSED	*
VERT. /HOR. FREQ. SET.	OPEN	CLOSED

TABLE 3

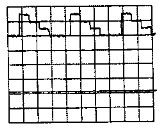
	FREQUENCY kHz	7621 PIN 36	7621 PIN 39	7621 PIN 38	7621 PIN 37
1	<32.5	0	0	0	0
2	32.5-36.5	0	1	0	0
3	36.5-43.0	0	1	1	0
4	43.0-53.0	1	0	1	0
5	53.0-58.5	1	1	0	0
6	58.5-66.0	1	1	0	1
7	66.0-74.0	1	1	1	0
8	>74.0	1	1	1	1

CM 5600

CL46620017/011.XPAR
120894

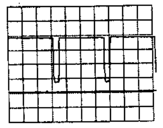
Wave forms for diagram A

A1 7205-B



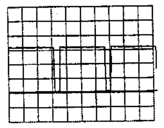
T=17.7us
Δv=0.74v AC

A2 7210-B



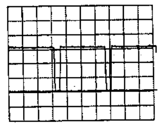
T=17.7us
Δv=3.12v AC

A3 7210-C



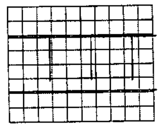
T=17.7us
Δv=3.2v AC

A4 7210-E



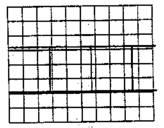
T=17.7us
Δv=3.16v AC

A5 7208-B



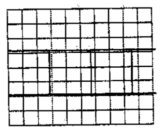
T=14.2ms
Δv=3v AC

A6 7208-C



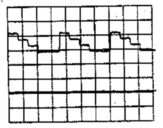
T=14.2ms
Δv=3v AC

A7 7208-E



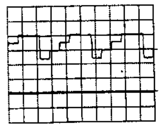
T=14.2ms
Δv=3v AC

A8 7213-B



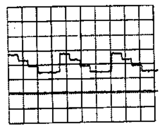
T=17.7us
Δv=0.68v AC

A9 7213-C



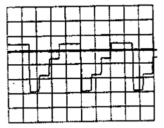
T=17.7us
Δv=3.44v AC

A10 7213-E



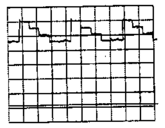
T=17.7us
Δv=0.7v AC

A11 7212-B



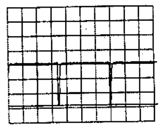
T=17.7us
Δv=3.36v AC

A12 7731-16



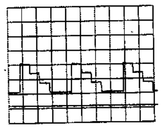
T=17.7us
Δv=0.76v AC

A13 7731-5



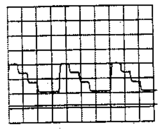
T=17.7us
Δv=6v AC

A14 7731-8



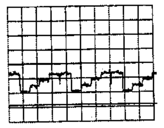
T=17.7us
Δv=4.16v AC

A15 7731-9



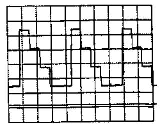
T=17.7us
Δv=4.08v AC

A16 7731-11



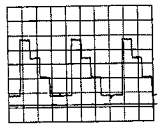
T=17.7us
Δv=0.32v AC

A17 7721-B



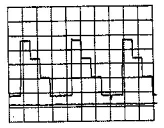
T=17.7us
Δv=4v AC

A18 7721-E



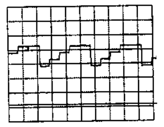
T=17.7us
Δv=3.96v AC

A19 7702-B



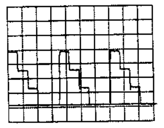
T=17.7us
Δv=3.92v AC

A20 7702-C



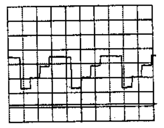
T=17.7us
Δv=3.04v AC

A21 7702-E



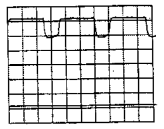
T=17.7us
Δv=3.84v AC

A22 7701-C



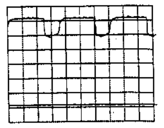
T=17.7us
Δv=44.8v AC

A23 7711-B



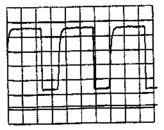
T=17.7us
Δv=27.2v AC

A24 7711-E



T=17.7us
Δv=26.4v AC

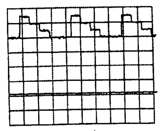
A25 7712-E



T=17.7us
Δv=4.36v AC

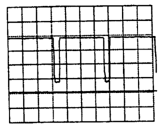
Wave forms for diagram A

A1 7205-B



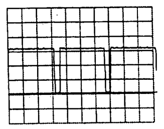
T=17.7us
Δv=0.74v AC

A2 7210-B



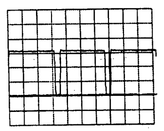
T=17.7us
Δv=3.12v AC

A3 7210-C



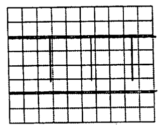
T=17.7us
Δv=3.2v AC

A4 7210-E



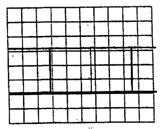
T=17.7us
Δv=3.16v AC

A5 7208-B



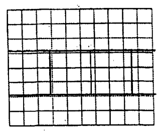
T=14.2ms
Δv=3v AC

A6 7208-C



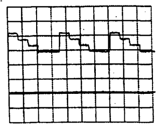
T=14.2ms
Δv=3v AC

A7 7208-E



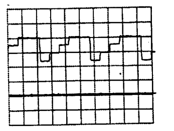
T=14.2ms
Δv=3v AC

A8 7213-B



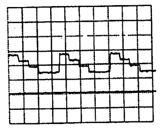
T=17.7us
Δv=0.68v AC

A9 7213-C



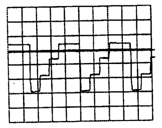
T=17.7us
Δv=3.44v AC

A10 7213-E



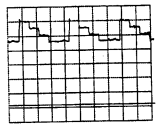
T=17.7us
Δv=0.7v AC

A11 7212-B



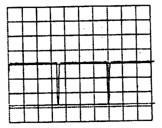
T=17.7us
Δv=3.36v AC

A12 7731-16



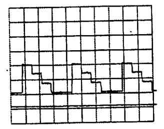
T=17.7us
Δv=0.76v AC

A13 7731-5



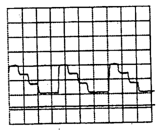
T=17.7us
Δv=6v AC

A14 7731-8



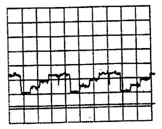
T=17.7us
Δv=4.16v AC

A15 7731-9



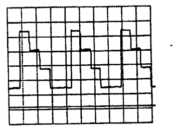
T=17.7us
Δv=4.08v AC

A16 7731-11



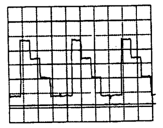
T=17.7us
Δv=0.32v AC

A17 7721-B



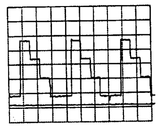
T=17.7us
Δv=4v AC

A18 7721-E



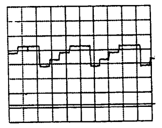
T=17.7us
Δv=3.96v AC

A19 7702-B



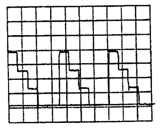
T=17.7us
Δv=3.92v AC

A20 7702-C



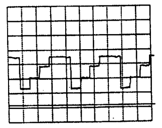
T=17.7us
Δv=3.04v AC

A21 7702-E



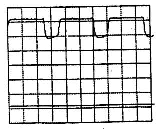
T=17.7us
Δv=3.84v AC

A22 7701-C



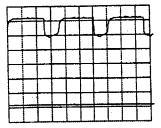
T=17.7us
Δv=44.8v AC

A23 7711-B



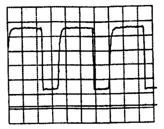
T=17.7us
Δv=27.2v AC

A24 7711-E



T=17.7us
Δv=26.4v AC

A25 7712-E



T=17.7us
Δv=4.36v AC

Video panel / Input panel

2701	B1	2728	E2	2752	C2	3704	B2	3728	F3	3757	C5	3785	D5	3833	F5	6701	C2	7720	E2	P707	C2	P731	B3	P755	A3	P779	F2	P803	C5	P834	E2
2702	A1	2729	F2	2753	D1	3705	A2	3729	C3	3758	C5	3786	E5	3834	B3	6702	B2	7721	C3	P708	C3	P732	C2	P756	A3	P780	C2	P805	A1	P835	F1
2703	E2	2730	F3	2754	E3	3706	E2	3730	B2	3759	E5	3787	A5	3835	B4	6703	F2	7722	B3	P709	C2	P733	A5	P757	A3	P781	F1	P807	C3	P836	D5
2704	B2	2731	B3	2755	D4	3707	C1	3731	F3	3760	E5	3788	A5	3836	A4	6705	E5	7723	F3	P710	C3	P734	B5	P758	A3	P782	F2	P808	D5	P837	E4
2705	A2	2732	A3	2756	D5	3708	A1	3733	C3	3765	F1	3789	E2	3837	F4	6706	D5	7731	B2	P711	B4	P735	A1	P759	B3	P783	F2	P809	E4	P838	F2
2706	E2	2733	F3	2764	C4	3709	F1	3735	A3	3766	F1	3791	B5	3838	E2	6711	D5	7732	A2	P712	B3	P736	A2	P760	A4	P784	F3	P810	C4	P839	E2
2707	B2	2734	B4	2765	C3	3710	C2	3736	F4	3767	D5	3792	A5	3841	C2	6712	C5	7733	F2	P713	C3	P737	A2	P761	B4	P785	F3	P811	D5	P840	E2
2708	A2	2735	A4	2766	D4	3711	B2	3737	C3	3768	D4	3793	D2	3842	A2	6713	B4	9701	E3	P714	C4	P738	A2	P762	B5	P786	F3	P813	D5	P841	D2
2709	F2	2736	F4	2767	D4	3712	F2	3738	B3	3769	C5	3794	D4	3843	F2	6714	B4	F701	B1	P715	C5	P739	B2	P763	A5	P787	F3	P815	D5	P842	D4
2713	B2	2737	C2	2768	D4	3713	C2	3739	F3	3770	C5	3795	D4	3852	C2	6715	E4	F702	A1	P716	C4	P740	B2	P764	A4	P788	F4	P816	E5	P843	D2
2714	A2	2738	B3	2769	E5	3714	C2	3740	C4	3771	E4	3796	E4	3853	B2	6716	E4	F703	E2	P717	C5	P741	B2	P765	B3	P789	E4	P817	B5	P844	C1
2715	F2	2739	A2	2770	D1	3715	B2	3741	A3	3772	E5	3797	E5	3856	B2	6720	C3	F709	D3	P718	C5	P742	B2	P766	E1	P790	E4	P818	C5	P845	C3
2716	C2	2740	A3	2771	E1	3716	F2	3742	F3	3773	C5	3798	D2	5704	C1	7701	C4	M506	C3	P719	B5	P743	A5	P767	E2	P791	E3	P820	D5	P846	C4
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2718	F2	2742	F3	2773	E1	3718	B2	3744	B3	3775	E4	3804	A3	5706	F2	7703	A4	M705	E3	P721	C4	P745	A2	P770	E2	P793	F3	P822	D4	P848	D4
2719	B3	2743	A5	2774	E1	3719	F3	3746	A3	3776	C4	3806	F3	5707	C4	7704	A3	M706	C3	P722	C3	P746	A2	P771	B5	P794	F3	P823	E5	P849	D1
2720	B2	2744	C4	2775	E1	3720	C2	3747	A3	3777	B3	3811	C5	5708	B4	7705	F4	M707	E1	P723	B3	P747	A2	P771	B5	P795	F3	P824	E5	P850	C3
2721	B2	2745	B3	2776	E1	3721	B2	3749	F3	3778	E4	3812	C5	5709	E4	7706	F3	M708	C1	P724	B3	P748	A2	P772	D2	P796	F3	P826	E5	P851	B4
2722	B2	2746	E4	2779	F1	3722	F2	3750	F3	3779	C1	3813	B5	5710	B5	7711	D5	P701	B1	P725	B3	P749	A2	P773	F2	P797	E4	P827	E5		
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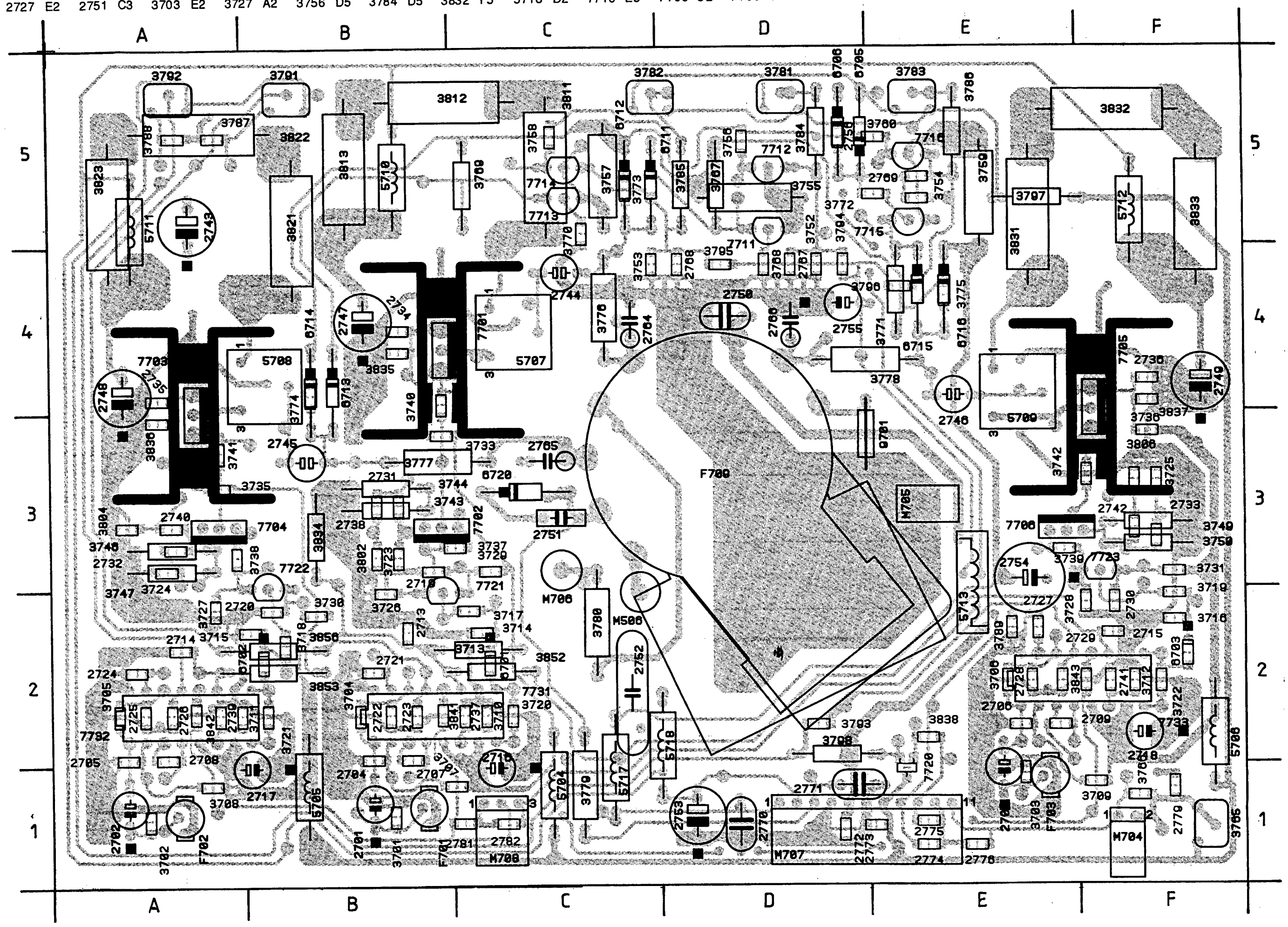
2724	A2	2748	A4	2782	C1	3724	A3	3753	D4	3781	D5	3822	A5	5712	F5	7713	C5	P703	B2	P727	C2	P751	E2	P775	F2	P799	F5	P829	A3		
2725	A2	2749	F4	3701	B1	3725	F3	3754	E5	3782	D5	3823	A5	5713	E2	7714	C5	P704	B2	P728	B2	P752	B3	P776	E2	P800	F4	P830	B1		
2726	A2	2750	D4	3702	A1	3726	B3	3755	D5	3783	E5	3831	E5	5717	C2	7715	E5	P705	C2	P729	B2	P753	B3	P777	E2	P801	E4	P831	E5		
2727	E2	2751	C3	3703	E2	3727	A2	3756	D5	3784	D5	3832	F5	5718	D2	7716	E5	P706	C2	P730	B2	P754	B3	P778	F3	P802	C2	P832	D2		



1207	B5	2212	A3	2222	B3	2232	C6	3223	B6	3232	B4	3241	A2	3250	A1	3264	B3	3273	B2	3284	C3	3293	B2	5205	B2	7204	A4	7213	B6	9207	C3	F257	B2
2201	A2	2213	A4	2223	A4	2233	B1	3224	B6	3233	B4	3242	A2	3251	B1	3265	B4	3274	B1	3285	B3	3294	B5	6201	A2	7205	A4	7214	A6	F231	A3	M222	A2
2202	A2	2214	B6	2224	A4	2234	C6	3225	A3	3234	A3	3243	B2	3256	A2	3266	B4	3275	C5	3286	B3	3295	B4	6202	A2	7206	A5	7215	C5	F232	A3	M223	A1
2203	A6	2215	A6	2225	A4	2235	A6	3226	B4	3235	B3	3244	B2	3257	A2	3267	B6	3276	C5	3287	B6	3296	B3	6203	A1	7207	B1	7216	B3	F233	A4	M225	A1
2207	B6	2216	B3	2226	A4	3210	B5	3227	A4	3236	B4	3245	B4	3258	B2	3268	B6	3277	C5	3288	B1	3297	B2	6204	B2	7208	A2	9201	B3	F251	B6		
2208	B6	2217	A5	2227	B2	3213	A5	3228	A3	3237	B6	3246	B4	3259	B2	3269	B2	3279	A5	3289	A1	3298	B2	6205	A1	7209	B3	9202	B3	F253	B3		
2209	B5	2218	A6	2228	A2	3214	A6	3229	A4	3238	B3	3247	B4	3261	B3	3270	B1	3280	A6	3290	B6	3299	B2	7201	A3	7210	A3	9203	B5	F254	B3		
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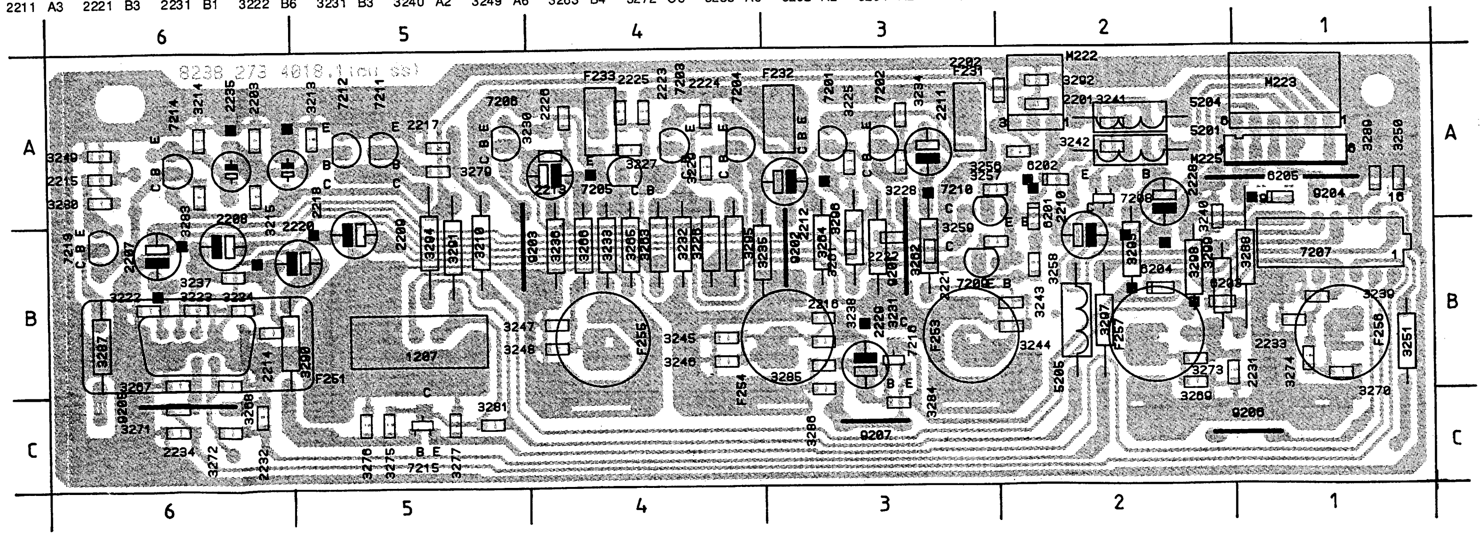
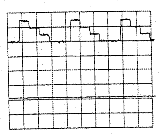
2211	A3	2221	B3	2231	B1	3222	B6	3231	B3	3240	A2	3249	A6	3263	B4	3272	C6	3283	A6	3292	A2	5204	A2	7203	A4	7212	A5	9205	C6	F256	B1		



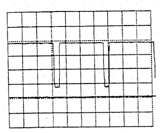
Wave forms for diagram A

A1 7205-B



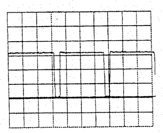
T=17.7us
Δv=0.74v AC

A2 7210-B



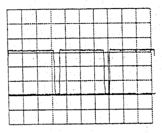
T=17.7us
Δv=3.12v AC

A3 7210-C



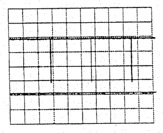
T=17.7us
Δv=3.2v AC

A4 7210-E



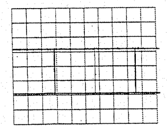
T=17.7us
Δv=3.16v AC

A5 7208-B



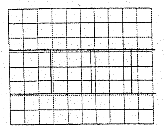
T=14.2ms
Δv=3v AC

A6 7208-C



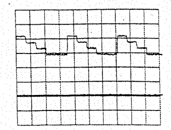
T=14.2ms
Δv=3v AC

A7 7208-E



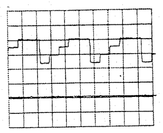
T=14.2ms
Δv=3v AC

A8 7213-B



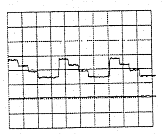
T=17.7us
Δv=0.68v AC

A9 7213-C



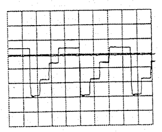
T=17.7us
Δv=3.44v AC

A10 7213-E



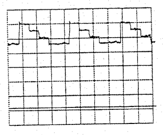
T=17.7us
Δv=0.7v AC

A11 7212-B



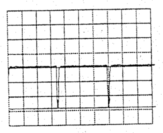
T=17.7us
Δv=3.36v AC

A12 7731-16



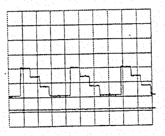
T=17.7us
Δv=0.76v AC

A13 7731-5



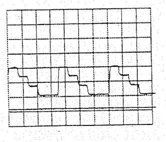
T=17.7us
Δv=6v AC

A14 7731-8



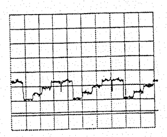
T=17.7us
Δv=4.16v AC

A15 7731-9



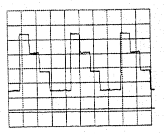
T=17.7us
Δv=4.08v AC

A16 7731-11



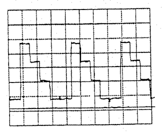
T=17.7us
Δv=0.32v AC

A17 7721-B



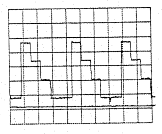
T=17.7us
Δv=4v AC

A18 7721-E



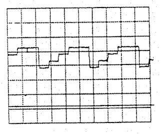
T=17.7us
Δv=3.96v AC

A19 7702-B



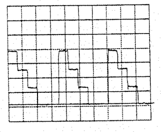
T=17.7us
Δv=3.92v AC

A20 7702-C



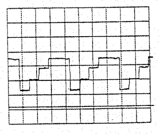
T=17.7us
Δv=3.04v AC

A21 7702-E



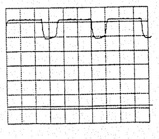
T=17.7us
Δv=3.84v AC

A22 7701-C



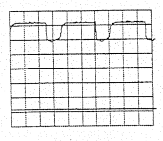
T=17.7us
Δv=44.8v AC

A23 7711-B



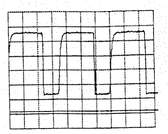
T=17.7us
Δv=27.2v AC

A24 7711-E



T=17.7us
Δv=26.4v AC

A25 7712-E



T=17.7us
Δv=4.36v AC

Video panel / Input panel

2701	B1	2728	E2	2752	C2	3704	B2	3728	F3	3757	C5	3785	D5	3833	F5	6701	C2	7720	E2	P707	C2	P731	B3	P755	A3	P779	F2	P803	C5	P834	E2
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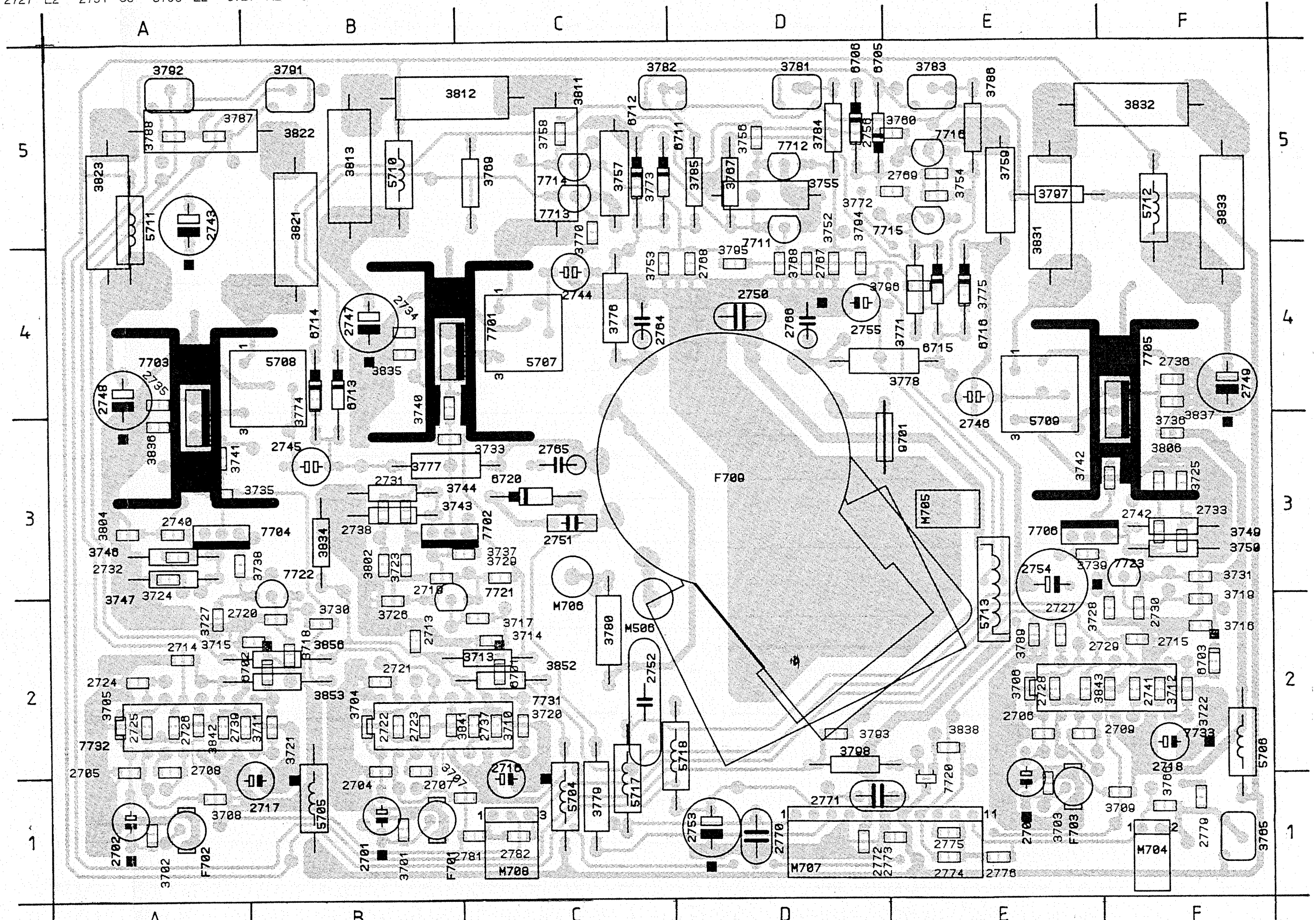
2715	F2	2739	A2	2770	D1	3715	B2	3741	A3	3772	E5	3797	E5	3856	B2	6720	C3	F709	D3	P718	C5	P742	B2	P766	E1	P790	E4	P818	C5	P845	C3
2716	C2	2740	A3	2771	E1	3716	F2	3742	F3	3773	C5	3798	D2	5704	C1	7701	C4	M506	C3	P719	B5	P743	A5	P767	E2	P791	E3	P820	D5	P846	C4
2717	B2	2741	F2	2772	D1	3717	C2	3743	B3	3774	B4	3802	B3	5705	B1	7702	C3	M704	F1	P720	B5	P744	A5	P768	E2	P792	F3	P821	D5	P847	C3
2718	F2	2742	F3	2773	E1	3718	B2	3744	B3	3775	E4	3804	A3	5706	F2	7703	A4	M705	E3	P721	C4	P745	A2	P770	E2	P793	F3	P822	D4	P848	D4
2719	B3	2743	A5	2774	E1	3719	F3	3746	A3	3776	C4	3806	F3	5707	C4	7704	A3	M706	C3	P722	C3	P746	A2	P771	B5	P794	F3	P823	E5	P849	D1
2720	B2	2744	C4	2775	E1	3720	C2	3747	A3	3777	B3	3811	C5	5708	B4	7705	F4	M707	E1	P723	B3	P747	A2	P771	B5	P795	F3	P824	E5	P850	C3
2721	B2	2745	B3	2776	E1	3721	B2	3749	F3	3778	E4	3812	C5	5709	E4	7706	F3	M708	C1	P724	B3	P748	A2	P772	D2	P796	F3	P826	E5	P851	B4
2722	B2	2746	E4	2779	F1	3722	F2	3750	F3	3779	C1	3813	B5	5710	B5	7711	D5	P701	B1	P725	B3	P749	A2	P773	F2	P797	E4	P827	E5		
2723	B2	2747	B4	2781	C1	3723	B3	3752	D4	3780	C2	3821	B5	5711	A5	7712	D5	P702	B2	P726	B2	P750	A2	P774	F2	P798	E5	P828	E5		
2724	A2	2748	A4	2782	C1	3724	A3	3753	D4	3781	D5	3822	A5	5712	F5	7713	C5	P703	B2	P727	C2	P751	E2	P775	F2	P799	F5	P829	A3		
2725	A2	2749	F4	3701	B1	3725	F3	3754	E5	3782	D5	3823	A5	5713	E2	7714	C5	P704	B2	P728	B2	P752	B3	P776	E2	P800	F4	P830	B1		
2726	A2	2750	D4	3702	A1	3726	B3	3755	D5	3783	E5	3831	E5	5717	C2	7715	E5	P705	C2	P729	B2	P753	B3	P777	E2	P801	E4	P831	E5		
2727	E2	2751	C3	3703	E2	3727	A2	3756	D5	3784	D5	3832	F5	5718	D2	7716	E5	P706	C2	P730	B2	P754	B3	P778	F3	P802	C2	P832	D2		



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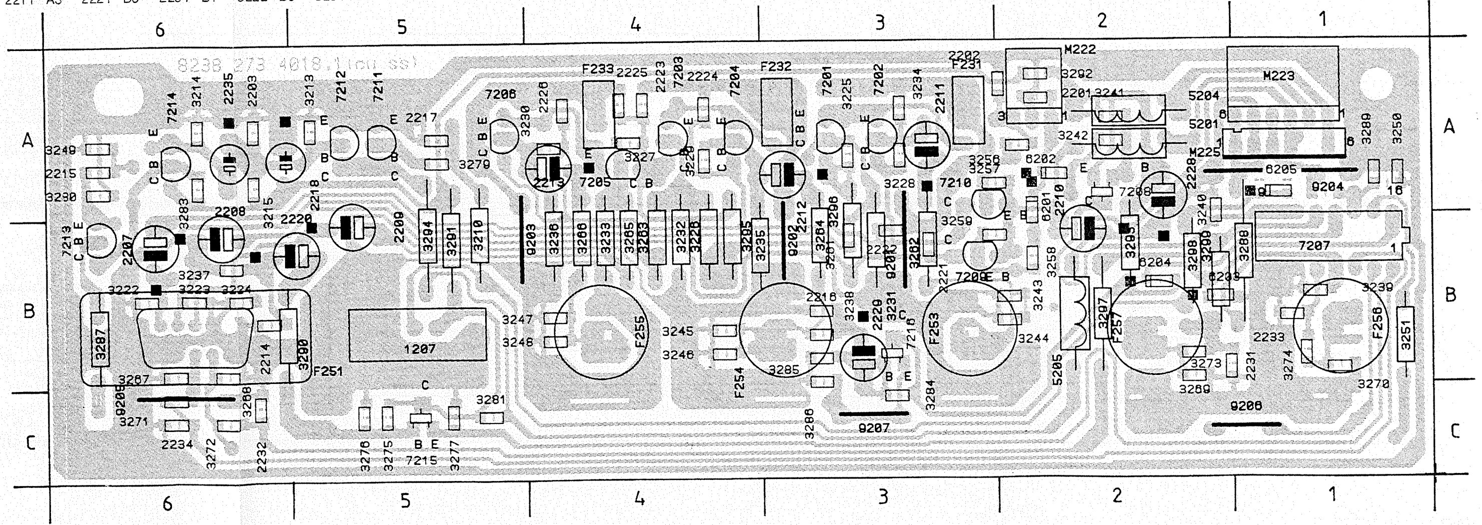
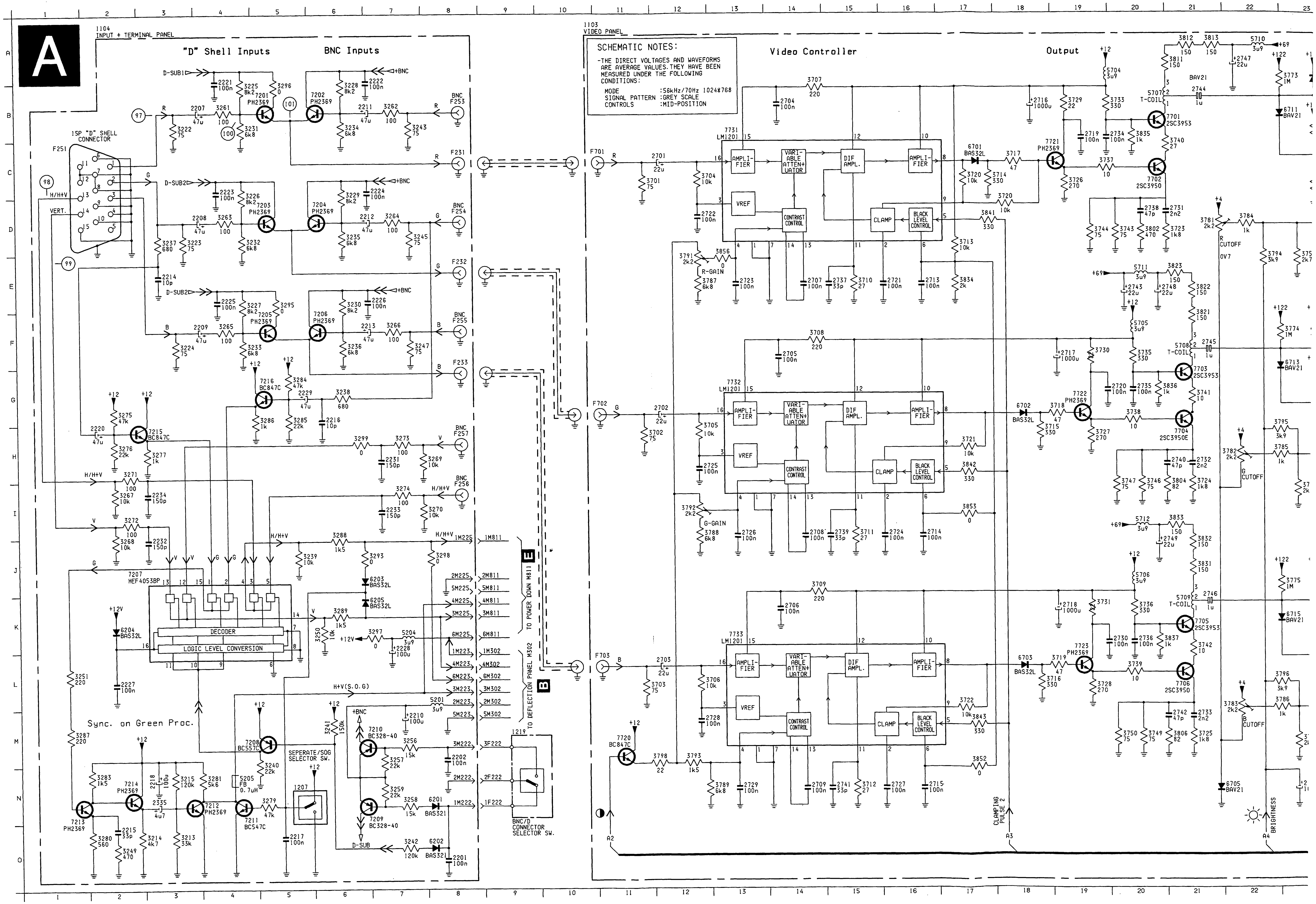
2201	A2	2213	A4	2223	A4	2233	B1	3224	B6	3233	B4	3242	A2	3251	B1	3265	B4	3274	B1	3285	B3	3294	B5	6201	A2	7205	A4	7214	A6	F231	A3	M222	A2
2202	A2	2214	B6	2224	A4	2234	C6	3225	A3	3234	A3	3243	B2	3256	A2	3266	B4	3275	C5	3286	B3	3295	B4	6202	A2	7206	A5	7215	C5	F232	A3	M223	A1
2203	A6	2215	A6	2225	A4	2235	A6	3226	B4	3235	B3	3244	B2	3257	A2	3267	B6	3276	C5	3287	B6	3296	B3	6203	A1	7207	B1	7216	B3	F233	A4	M225	A1
2207	B6	2216	B3	2226	A4	3210	B5	3227	A4	3236	B4	3245	B4	3258	B2	3268	B6	3277	C5	3288	B1	3297	B2	6204	B2	7208	A2	9201	B3	F251	B6		
2208	B6	2217	A5	2227	B2	3213	A5	3228	A3	3237	B6	3246	B4	3259	B2	3269	B2	3279	A5	3289	A1	3298	B2	6205	A1	7209	B3	9202	B3	F253	B3		
2209	B5	2218	A6	2228	A2	3214	A6	3229	A4	3238	B3	3247	B4	3261	B3	3270	B1	3280	A6	3290	B6	3299	B2	7201	A3	7210	A3	9203	B5	F254	B3		
2210	B2	2220	B5	2229	B3	3215	A6	3230	A4	3239	B1	3248	B4	3262	B3	3271	C6	3281	C5	3291	B5	5201	A2	7202	A3	7211	A5	9204	A1	F255	B4		
2211	A3	2221	B3	2231	B1	3222	B6	3231	B3	3240	A2	3249	A6	3263	B4	3272	C6	3283	A6	3292	A2	5204	A2	7203	A4	7212	A5	9205	C6	F256	B1		



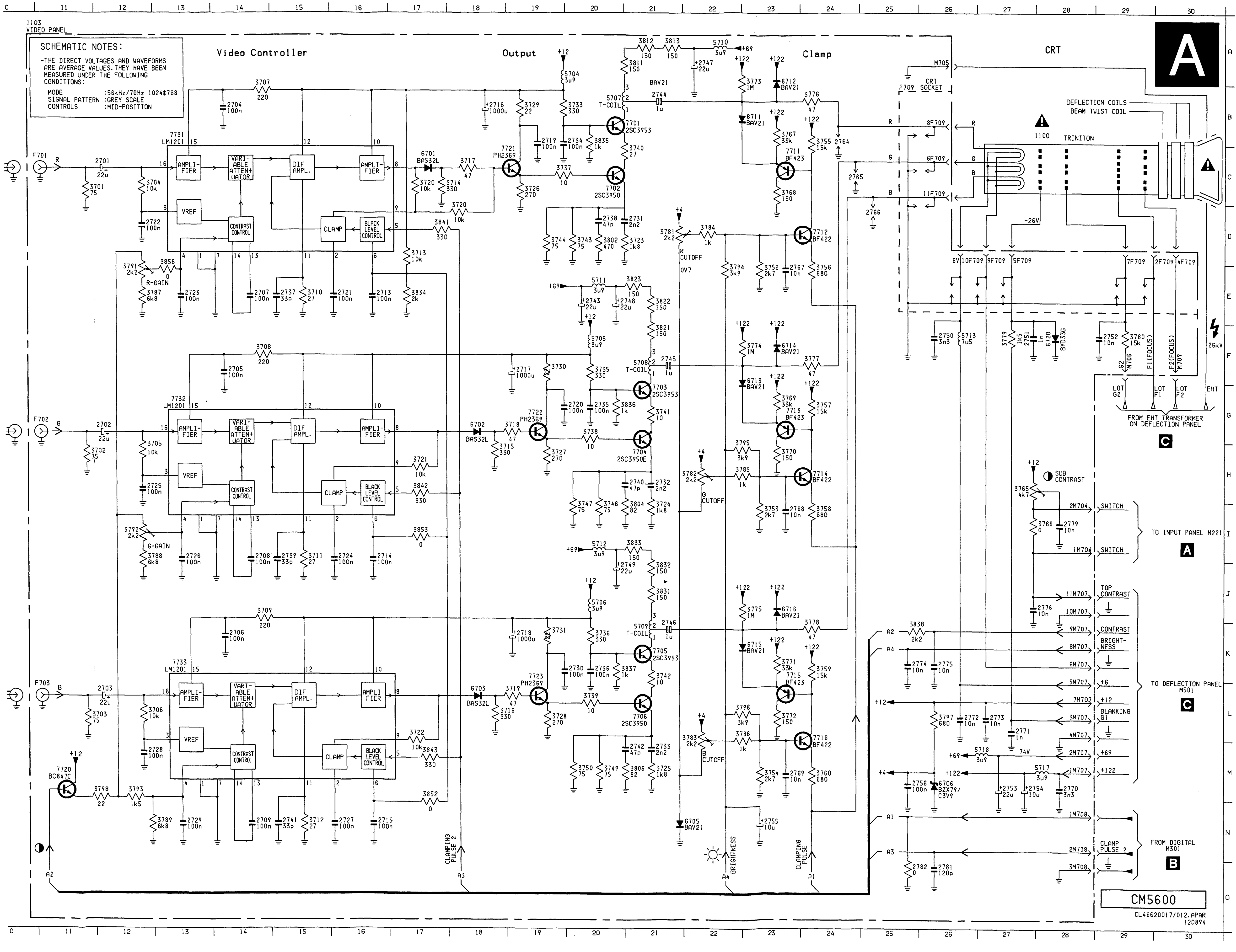

A
1104
INPUT + TERMINAL PANEL
"D" Shell Inputs
BNC Inputs
15P "D" SHELL CONNECTOR
F251
H/H+V
VERT.
D-SUB1
D-SUB2
+BNC
BNC F253
BNC F254
BNC F255
BNC F257
BNC F256
F231
F232
F233
7201 PH2369
7202 PH2369
7203 PH2369
7204 PH2369
7205 PH2369
7206 PH2369
7215 BC847C
7216 BC847C
7207 HEF4053BP
DECODER
LOGIC LEVEL CONVERSION
Sync. on Green Proc.
7208 BC557C
7210 BC328-40
7209 BC328-40
7211 BC547C
7212 PH2369
7213 PH2369
7214 PH2369
SEPERATE/SOG SELECTOR SW.
1207
1219
BNC/D CONNECTOR SELECTOR SW.
H+V(S.O.G)
D-SUB
TO POWER DOWN M811
E
TO DEFLECTION PANEL M302
B
1103
VIDEO PANEL
Video Controller
Output
F701
F702
F703
7731 LM1201
7732 LM1201
7733 LM1201
AMPLI-FIER
VARI-ABLE ATTEN+UATOR
DIF AMPL.
VREF
CONTRAST CONTROL
CLAMP
BLACK LEVEL CONTROL
R-GAIN
G-GAIN
7720 BC847C
CLAMPING PULSE 2
BRIGHTNESS
A2
A3
A4
7721 PH2369
7722 PH2369
7723 PH2369
7701 2SC3953
7702 2SC3950
7703 2SC3953
7704 2SC3950E
7705 2SC3953
7706 2SC3950
T-COIL
BAV21
R CUTOFF
G CUTOFF
B CUTOFF
0V7
+12
+69
+122
+4

SCHEMATIC NOTES:

-THE DIRECT VOLTAGES AND WAVEFORMS ARE AVERAGE VALUES. THEY HAVE BEEN MEASURED UNDER THE FOLLOWING CONDITIONS:

MODE :56kHz/70Hz 1024*768
SIGNAL PATTERN :GREY SCALE
CONTROLS :MID-POSITION

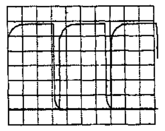
Video panel / input panel


1103
VIDEO PANEL
SCHEMATIC NOTES:
-THE DIRECT VOLTAGES AND WAVEFORMS ARE AVERAGE VALUES.THEY HAVE BEEN MEASURED UNDER THE FOLLOWING CONDITIONS:
MODE :56kHz/70Hz 1024*768
SIGNAL PATTERN :GREY SCALE
CONTROLS :MID-POSITION
Video Controller
Output
Clamp
CRT
A
7731 LM1201
7732 LM1201
7733 LM1201
AMPLI-FIER
VARI-ABLE ATTEN+UATOR
DIF AMPL.
VREF
CONTRAST CONTROL
CLAMP
BLACK LEVEL CONTROL
F701 R
F702 G
F703 B
7701 2SC3953
7702 2SC3950
7703 2SC3953
7704 2SC3950E
7705 2SC3953
7706 2SC3950
7721 PH2369
7722 PH2369
7723 PH2369
7711 BF423
7712 BF422
7713 BF423
7714 BF422
7715 BF423
7716 BF422
7720 BC847C
6701 BAS32L
6702 BAS32L
6703 BAS32L
6705 BAV21
6706 BZX79/C3V9
5707 T-COIL
5708 T-COIL
5709 T-COIL
R-GAIN
G-GAIN
R CUTOFF
G CUTOFF
B CUTOFF
0V7
BRIGHTNESS
CLAMPING PULSE 2
CLAMPING PULSE
M705
F709 SOCKET
CRT SOCKET
8F709
6F709
11F709
DEFLECTION COILS
BEAM TWIST COIL
1100
TRINITON
-26V
26kV
EHT
LOT G2
LOT F1
LOT F2
F1(FOCUS)
F2(FOCUS)
FROM EHT TRANSFORMER ON DEFLECTION PANEL
C
SUB CONTRAST
SWITCH
TO INPUT PANEL M221
A
TOP CONTRAST
CONTRAST
BRIGHT-NESS
+6
+12
BLANKING G1
+69
+122
TO DEFLECTION PANEL M501
C
CLAMP PULSE 2
FROM DIGITAL M301
B
CM5600
CL46620017/012.APAR 120894

1100	B28	3232	D 4	3771	K23	7733	K1
1103	A10	3233	F 4	3772	L23	F251	C 1
1104	A 2	3234	B 6	3773	A23		
1207	N 5	3235	D 6	3774	F23		
1219	M 9	3236	F 6	3775	J23		
2201	O 8	3237	D 3	3776	B24		
2202	M 8	3238	G 6	3777	F24		
2207	B 4	3239	J 5	3778	K24		
2208	D 4	3240	N 5	3779	F27		
2209	F 4	3241	M 6	3780	F29		
2210	M 7	3242	O 7	3781	D21		
2211	B 7	3243	B 7	3782	H22		
2212	D 7	3245	D 7	3783	M22		
2213	F 7	3247	F 7	3784	D22		
2214	E 3	3249	O 2	3785	H23		
2215	O 2	3250	K 6	3786	L23		
2216	G 6	3251	L 1	3787	E12		
2217	O 5	3256	M 7	3788	I12		
2218	N 3	3257	M 7	3789	N13		
2220	H 2	3258	N 7	3791	E12		
2221	B 4	3259	N 7	3792	I12		
2222	B 7	3261	B 4	3793	M12		
2223	C 4	3262	B 7	3794	E22		
2224	C 7	3263	D 4	3795	H23		
2225	E 4	3264	D 7	3796	L23		
2226	E 7	3265	F 4	3797	L26		
2227	L 2	3266	F 7	3798	M12		
2228	K 7	3267	I 2	3802	D20		
2229	G 5	3268	J 2	3804	I21		
2231	H 7	3269	H 8	3806	M21		
2232	J 3	3270	I 8	3811	A21		
2233	I 7	3271	H 2	3812	A21		
2234	I 3	3272	I 2	3813	A21		
2335	N 3	3273	H 7	3821	F21		
2701	C12	3274	I 7	3822	E21		
2702	G12	3275	G 2	3823	E21		
2703	L12	3276	H 2	3831	J21		
2704	B14	3277	H 3	3832	J21		
2705	F14	3279	N 5	3833	I21		
2706	K14	3280	O 2	3834	E17		
2707	E14	3281	N 4	3835	C20		
2708	I14	3283	N 2	3836	G20		
2709	N14	3284	G 5	3837	K20		
2713	E16	3285	G 5	3838	K25		
2714	I16	3286	G 5	3841	D17		
2715	N16	3287	M 1	3842	H17		
2716	B18	3288	I 6	3843	M17		
2717	F19	3289	K 6	3852	M17		
2718	K19	3293	J 7	3853	I17		
2719	C19	3295	E 5	3856	E13		
2720	G20	3296	B 5	5201	L 8		
2721	E16	3297	K 7	5204	K 7		
2722	D12	3298	J 8	5205	N 4		
2723	E13	3299	H 6	5704	A19		
2724	I16	3701	C11	5705	F20		
2725	H12	3702	H11	5706	J20		
2726	I13	3703	L11	5707	B20		
2727	N16	3704	C12	5708	F21		
2728	M12	3705	G12	5709	K21		
2729	N13	3706	L12	5710	A22		
2730	K20	3707	B14	5711	E20		
2731	D21	3708	F14	5712	I20		
2732	H21	3709	J14	5713	F26		
2733	M21	3710	E15	5717	M28		
2734	C20	3711	I15	5718	M27		
2735	G20	3712	N15	6201	N 8		
2736	K20	3713	D17	6202	O 8		
2737	E15	3714	C17	6203	J 7		
2738	D20	3715	H18	6204	K 2		
2739	I15	3716	L18	6205	K 7		
2740	H21	3717	C18	6701	C17		
2741	N15	3718	G19	6702	G18		
2742	M21	3719	L19	6703	L18		
2743	E20	3720	C17	6705	N22		
2744	B21	3720	D18	6706	M26		
2745	F21	3721	H17	6711	B23		
2746	K21	3722	L17	6712	A23		
2747	A22	3723	D21	6713	G23		
2748	E20	3724	I21	6714	F23		
2749	J20	3725	M21	6715	K23		
2750	F26	3726	C19	6716	J23		
2751	F27	3727	H19	6720	F28		
2752	F29	3728	L19	7201	B 5		
2753	M27	3729	B19	7202	B 6		
2754	M27	3730	F19	7203	D 5		
2755	N23	3731	K19	7204	D 6		
2756	M25	3733	B20	7205	F 5		
2764	B24	3735	F20	7206	F 6		
2765	C24	3736	K20	7207	J 2		
2766	D25	3737	C19	7208	M 5		
2767	E23	3738	G20	7209	N 6		
2768	I23	3739	L20	7210	M 6		
2769	M23	3740	C21	7211	N 4		
2770	M28	3741	G21	7212	N 4		
2771	L27	3742	K21	7213	N 1		
2772	L26	3743	D20	7214	N 2		
2773	L27	3744	D19	7215	H 3		
2774	K25	3746	I20	7216	G 5		
2775	K26	3747	I20	7701	B21		
2776	J28	3749	M20	7702	C20		
2779	I28	3750	M20	7703	G21		
2781	O26	3752	E23	7704	H21		
2782	O25	3753	I23	7705	K21		
3213	O 3	3754	M23	7706	L21		
3214	O 3	3755	C24	7711	C23		
3215	N 3	3756	E24	7712	D24		
3222	B 3	3757	G24	7713	G23		
3223	D 3	3758	I24	7714	H24		
3224	F 3	3759	K24	7715	K23		
3225	B 4	3760	M24	7716	M24		
3226	D 4	3765	H27	7720	M11		
3227	E 4	3766	I28	7721	C19		
3228	B 6	3767	B23	7722	G19		
3229	D 6	3768	C23	7723	K19		
3230	E 6	3769	G23	7731	B13		
3231	B 4	3770	H23	7732	G13		

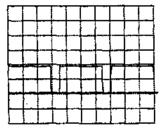
Wave forms for diagram C

C1 7321-3



T=17.7us
Δv=11.5v AC

C2 7323-9



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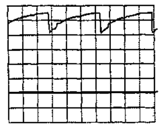
C3 7361-B



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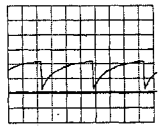
Δv=2.8v AC

C4 7323-14



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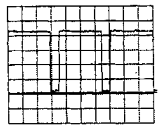
Δv=9.6v AC

C5 7324-11



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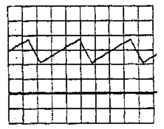
Δv=2.14v AC

C6 7324-16



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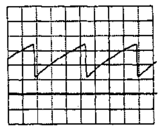
Δv=3.12v AC

C7 7323-2



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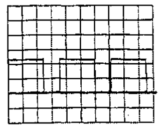
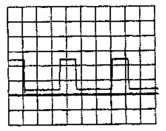
Δv=4.48v AC

C8 7323-6



T=17.7us
Δv=11.4v AC

C9 7323-7



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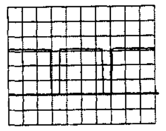
Δv=4.16v AC

C10 7323-5



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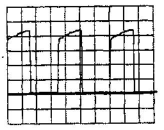
Δv=6.4v AC

C11 7324-4



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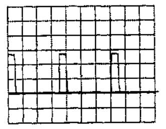
Δv=8.56v AC

C12 7324-2



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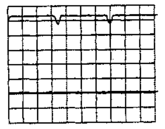
Δv=5.36v AC

C13 7324-17



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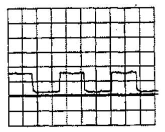
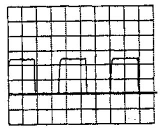
Δv=0.68v AC

C14 7345-B



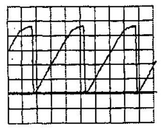
T=17.7us
Δv=0.7v AC

C15 7345-C



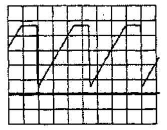
T=17.7us
Δv=12.2v AC

C16 7346-C



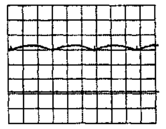
T=17.7us
Δv=9.36v AC

C17 7326-2



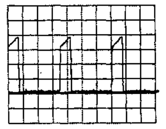
T=17.7us
Δv=8.16v AC

C18 7326-3



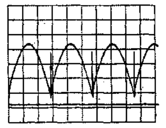
T=14.2ms
Δv=0.4v AC

C19 7326-1



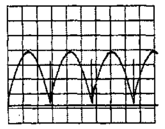
T=17.7us
Δv=3.72v AC

C20 7411-B



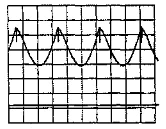
T=14.2ms
Δv=3.68v AC

C21 7411-E



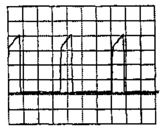
T=14.2ms
Δv=3.56v AC

C22 7411-C



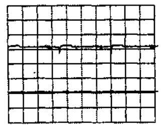
T=14.2ms
Δv=264v AC

C23 7326-7



T=17.7us
Δv=3.92v AC

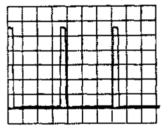
AC24 7326-5



T=17.7us
Δv=0.56v AC

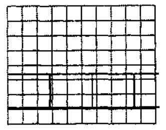
Wave forms for diagram B

B1 7321-1



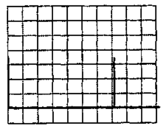
T=17.7us
Δv=10.9v AC

B3 7321-4



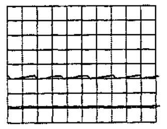
T=14.2ms
Δv=11.8v AC

B4 7321-5

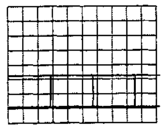


T=14.2ms
Δv=6.96v AC

B5 7321-9

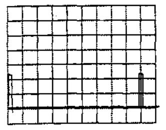


T=17.7us
Δv=1.2v AC



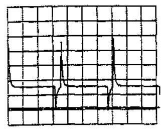
T=14.2ms
Δv=11.0v AC

B7 7321-11



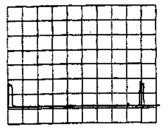
T=17.7us
Δv=11.4v AC

B8 7321-13



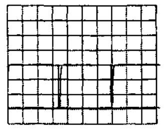
T=17.7us
Δv=9.6v AC

B9 7304-B



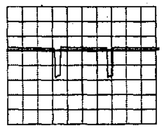
T=17.7us
Δv=0.84v AC

B10 7304-C



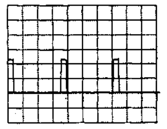
T=17.7us
Δv=6.0v AC

B11 7306-B



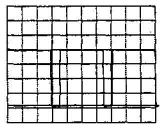
T=17.7us
Δv=10.4v AC

B12 7306-C

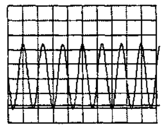


T=17.7us
Δv=11.6v AC

B13 7621-15

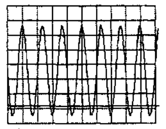


T=17.7us
Δv=3.96v AC



T=66ns
Δv=4.4v AC

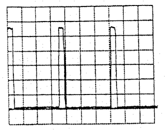
B15 7621-18



T=66ns
Δv=6.04v AC

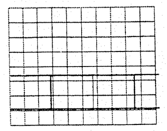
Wave forms for diagram B

B1 7321-1



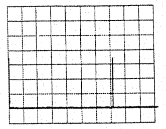
T=17.7us
Δv=10.9v AC

B3 7321-4



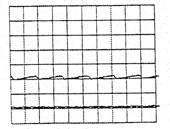
T=14.2ms
Δv=11.8v AC

B4 7321-5

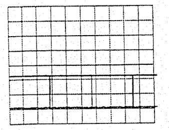


T=14.2ms
Δv=6.96v AC

B5 7321-9

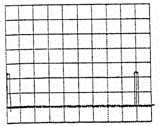


T=17.7us
Δv=1.2v AC



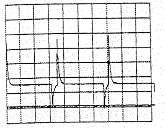
T=14.2ms
Δv=11.0v AC

B7 7321-11



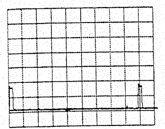
T=17.7us
Δv=11.4v AC

B8 7321-13



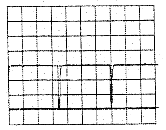
T=17.7us
Δv=9.6v AC

B9 7304-B



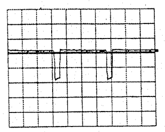
T=17.7us
Δv=0.84v AC

B10 7304-C



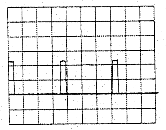
T=17.7us
Δv=6.0v AC

B11 7306-B



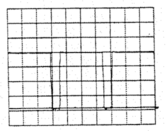
T=17.7us
Δv=10.4v AC

B12 7306-C

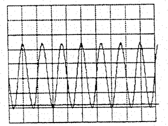


T=17.7us
Δv=11.6v AC

B13 7621-15

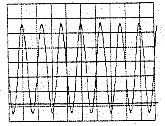


T=17.7us
Δv=3.96v AC



T=66ns
Δv=4.4v AC

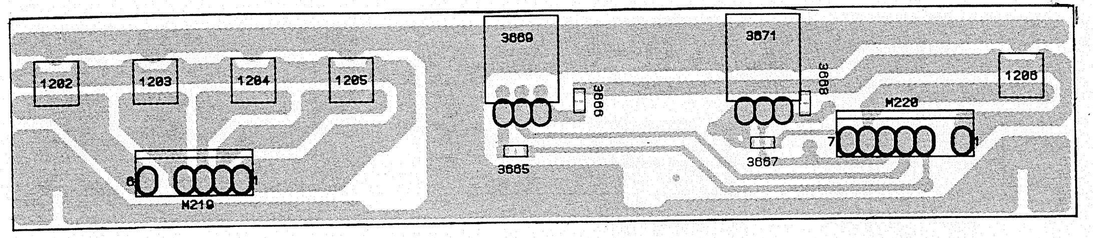
B15 7621-18



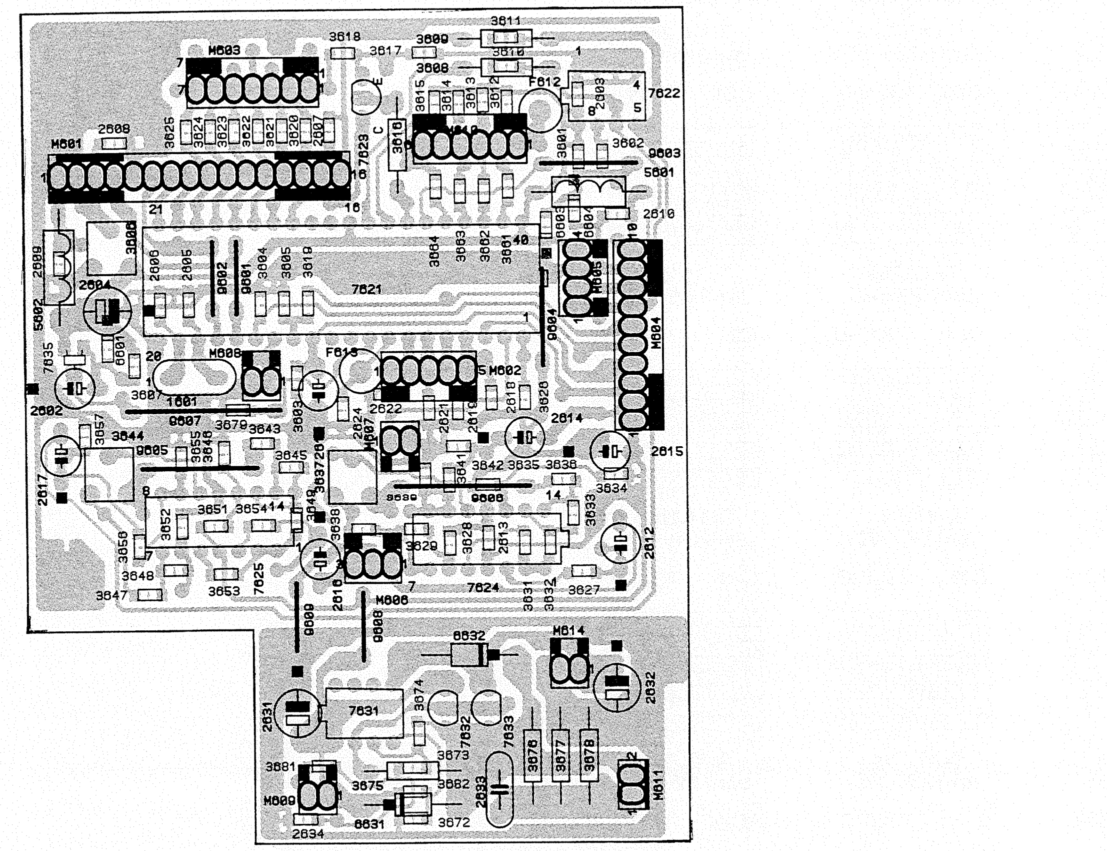
T=66ns
Δv=6.04v AC

Control panel / Digital panel

KEY CONTROL PANEL


1202
1203
1204
1205
3669
3666
3665
3671
3668
M220
3667
1206
M219

DIGITAL PANEL


3611
3618
3617
3609
3608
M603
F612
7622
M601
2608
7623
7621
M605
M604
F613
M602
1601
2602
2617
7635
5602
5601
2609
2610
2614
2615
2612
7624
7625
M608
7631
2631
2632
M614
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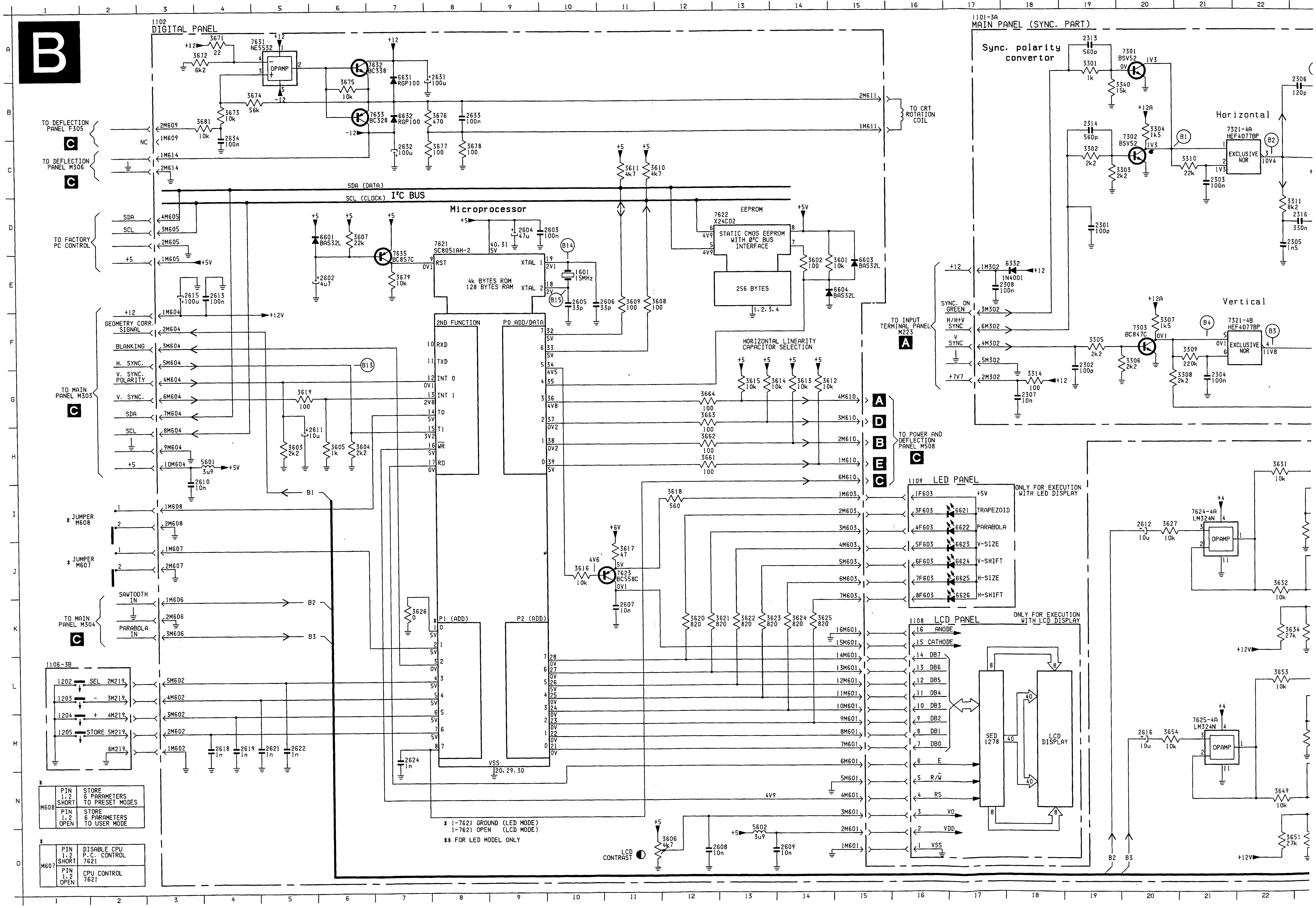
M611
M609
3681
3675
2633
3672
2634


B
1102
DIGITAL PANEL
1101-3A
MAIN PANEL (SYNC. PART)
Sync. polarity convertor
Horizontal
Vertical
7321-4A HEF4077BP EXCLUSIVE NOR
7321-4B HEF4077BP EXCLUSIVE NOR
7301 BSV52
7302 BSV52
7303 BC847C
7631 NE5532 OPAMP
7632 BC338
7633 BC328
6631 RGP100
6632 RGP100
TO CRT ROTATION COIL
2M611
1M611
TO DEFLECTION PANEL F305
C
TO DEFLECTION PANEL M306
C
NC
2M609
1M609
1M614
2M614
SDA (DATA)
SCL (CLOCK)
I²C BUS
TO FACTORY PC CONTROL
SDA
SCL
+5
4M605
3M605
2M605
1M605
Microprocessor
7621 SC8051AH-2
4k BYTES ROM 128 BYTES RAM
RST
XTAL 1
XTAL 2
1601 15MHz
2ND FUNCTION
P0 ADD/DATA
RXD
TXD
INT 0
INT 1
T0
T1
WR
RD
P1 (ADD)
P2 (ADD)
VSS
20, 29, 30
7622 X24C02
EEPROM
STATIC CMOS EEPROM WITH I²C BUS INTERFACE
256 BYTES
6601 BAS32L
7635 BC857C
6603 BAS32L
6604 BAS32L
TO MAIN PANEL M303
C
+12
GEOMETRY CORR. SIGNAL
BLANKING
H. SYNC.
V. SYNC. POLARITY
V. SYNC.
SDA
SCL
+5
1M604
2M604
3M604
5M604
4M604
6M604
7M604
8M604
9M604
10M604
5601 3u9
HORIZONTAL LINEARITY CAPACITOR SELECTION
4M610
3M610
2M610
1M610
6M610
A
D
B
E
C
TO POWER AND DEFLECTION PANEL M508
C
TO INPUT TERMINAL PANEL M223
A
SYNC. ON GREEN
H/H+V SYNC
V SYNC
+7V7
1M302
3M302
6M302
4M302
5M302
2M302
6332 1N4001
B1
B2
B3
B4
B13
B14
B15
JUMPER M608
JUMPER M607
1M608
2M608
1M607
2M607
TO MAIN PANEL M304
C
SAWTOOTH IN
PARABOLA IN
1M606
2M606
3M606
7623 BC558C
1109 LED PANEL
ONLY FOR EXECUTION WITH LED DISPLAY
1F603
3F603
4F603
5F603
6F603
7F603
8F603
6621 TRAPEZOID
6622 PARABOLA
6623 V-SIZE
6624 V-SHIFT
6625 H-SIZE
6626 H-SHIFT
1M603
2M603
3M603
4M603
5M603
6M603
7M603
1108 LCD PANEL
ONLY FOR EXECUTION WITH LCD DISPLAY
16 ANODE
15 CATHODE
14 DB7
13 DB6
12 DB5
11 DB4
10 DB3
9 DB2
8 DB1
7 DB0
6 E
5 R/W
4 RS
3 V0
2 VDD
1 VSS
SED 1278
LCD DISPLAY
16M601
15M601
14M601
13M601
12M601
11M601
10M601
9M601
8M601
7M601
6M601
5M601
4M601
3M601
2M601
1M601
5602 3u9
3606 4k7
LCD CONTRAST
1106-3B
1202 SEL 2M219
1203 - 3M219
1204 + 4M219
1205 STORE 5M219
6M219
5M602
4M602
3M602
2M602
1M602
7624-4A LM324N OPAMP
7625-4A LM324N OPAMP
+12V
* 1-7621 GROUND (LED MODE)
1-7621 OPEN (LCD MODE)
** FOR LED MODEL ONLY

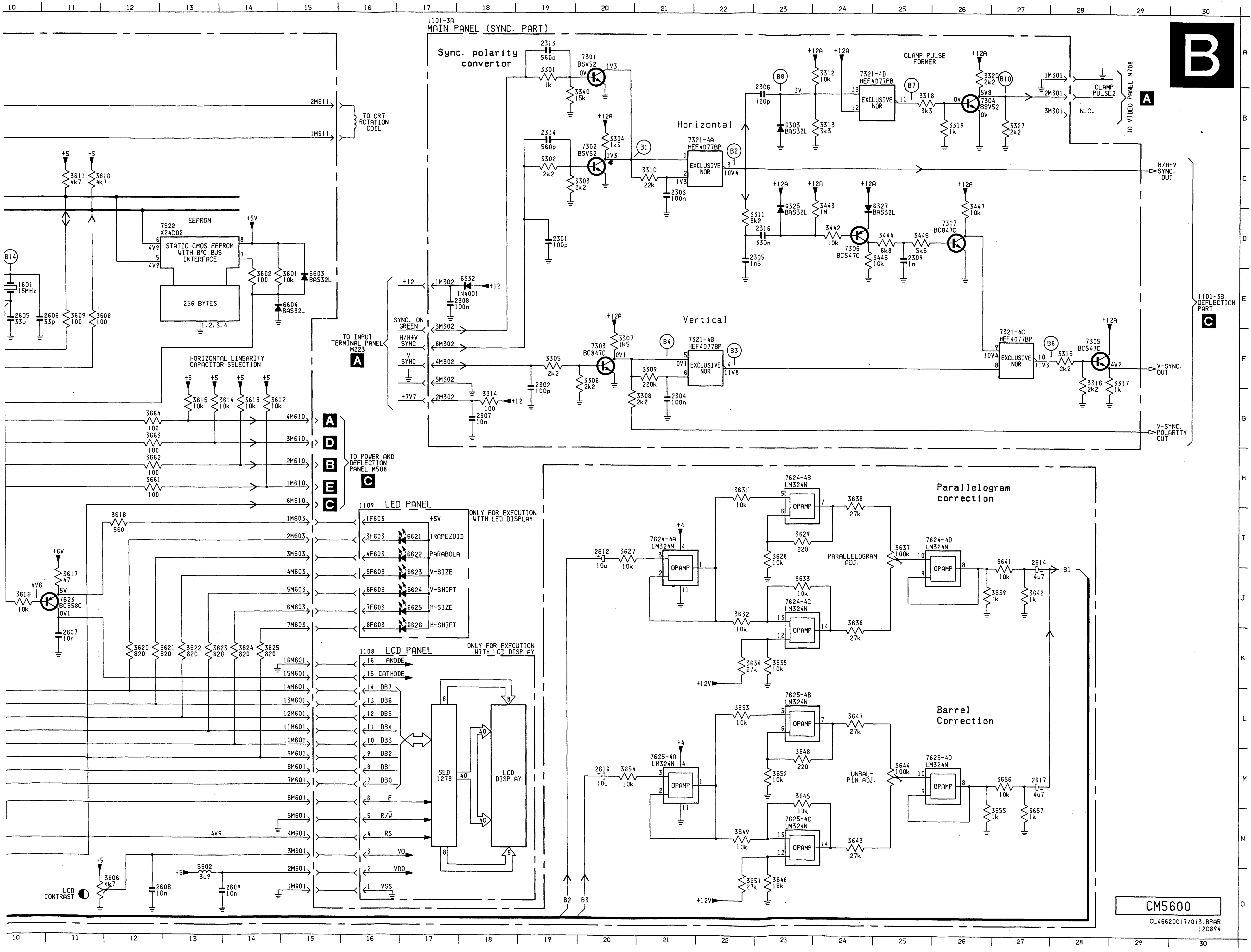
*

M608	PIN 1,2 SHORT	STORE 6 PARAMETERS TO PRESET MODES
	PIN 1,2 OPEN	STORE 6 PARAMETERS TO USER MODE

*

M607	PIN 1,2 SHORT	DISABLE CPU P.C. CONTROL 7621
	PIN 1,2 OPEN	CPU CONTROL 7621

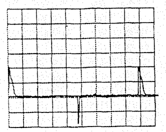
Control panel


B
1101-3A
MAIN PANEL (SYNC. PART)
Sync. polarity convertor
2313 560p
3301 1k
7301 BSV52
0V
1V3
3340 15k
2314 560p
3302 2k2
7302 BSV52
+12A
3304 1k5
3303 2k2
B1
3310 22k
2303 100n
Horizontal
7321-4A HEF4077BP
EXCLUSIVE NOR
B2
10V4
1V3
2301 100p
2306 120p
3V
B8
+12A
3312 10k
6303 BAS32L
3313 3k3
7321-4D HEF4077PB
EXCLUSIVE NOR
B7
3318 3k3
3319 1k
CLAMP PULSE FORMER
+12A
3320 2k2
B10
7304 BSV52
5V8
0V
3327 2k2
1M301
2M301
3M301
CLAMP PULSE2
N.C.
TO VIDEO PANEL M708
A
H/H+V SYNC. OUT
3311 8k2
2316 330n
2305 1n5
6325 BAS32L
3443 1M
6327 BAS32L
3442 10k
7306 BC547C
3444 6k8
3445 10k
3446 5k6
2309 1n
7307 BC847C
3447 10k
1101-3B DEFLECTION PART
C
+12
1M302
6332
1N4001
2308 100n
SYNC. ON GREEN
3M302
H/H+V SYNC
6M302
V SYNC
4M302
5M302
+7V7
2M302
3314 100
2307 10n
TO INPUT TERMINAL PANEL M223
A
3305 2k2
2302 100p
7303 BC847C
3307 1k5
0V1
3306 2k2
3309 220k
3308 2k2
B4
Vertical
7321-4B HEF4077BP
EXCLUSIVE NOR
B3
11V8
2304 100n
7321-4C HEF4077BP
EXCLUSIVE NOR
B6
11V3
3315 2k2
7305 BC547C
4V2
3316 2k2
3317 1k
V-SYNC. OUT
V-SYNC. POLARITY OUT
2M611
1M611
TO CRT ROTATION COIL
3611 4k7
3610 4k7
+5
7622 X24C02
EEPROM
STATIC CMOS EEPROM WITH I²C BUS INTERFACE
256 BYTES
1,2,3,4
4V9
3602 100
3601 10k
6603 BAS32L
6604 BAS32L
B14
1601 15MHz
2605 33p
2606 33p
3609 100
3608 100
HORIZONTAL LINEARITY CAPACITOR SELECTION
3615 10k
3614 10k
3613 10k
3612 10k
3664 100
3663 100
3662 100
3661 100
4M610
3M610
2M610
1M610
6M610
TO POWER AND DEFLECTION PANEL M508
1109 LED PANEL
ONLY FOR EXECUTION WITH LED DISPLAY
1F603 +5V
3F603 6621 TRAPEZOID
4F603 6622 PARABOLA
5F603 6623 V-SIZE
6F603 6624 V-SHIFT
7F603 6625 H-SIZE
8F603 6626 H-SHIFT
1M603
2M603
3M603
4M603
5M603
6M603
7M603
3618 560
+6V
3617 47
4V6
3616 10k
5V
7623 BC558C
0V1
2607 10n
3620 820
3621 820
3622 820
3623 820
3624 820
3625 820
1108 LCD PANEL
ONLY FOR EXECUTION WITH LCD DISPLAY
16M601 16 ANODE
15M601 15 CATHODE
14M601 14 DB7
13M601 13 DB6
12M601 12 DB5
11M601 11 DB4
10M601 10 DB3
9M601 9 DB2
8M601 8 DB1
7M601 7 DB0
6M601 6 E
5M601 5 R/W̄
4M601 4 RS
3M601 3 VO
2M601 2 VDD
1M601 1 VSS
SED 1278
LCD DISPLAY
40
8
3606 4k7
LCD CONTRAST
2608 10n
5602 3u9
2609 10n
4V9
Parallelogram correction
7624-4A LM324N
OPAMP
2612 10u
3627 10k
7624-4B LM324N
3631 10k
3638 27k
3629 220
3628 10k
PARALLELOGRAM ADJ.
3637 100k
7624-4D LM324N
3641 10k
2614 4u7
3639 1k
3642 1k
3633 10k
7624-4C LM324N
3632 10k
3636 27k
3634 27k
3635 10k
+12V
Barrel Correction
7625-4A LM324N
2616 10u
3654 10k
7625-4B LM324N
3653 10k
3647 27k
3648 220
3652 10k
UNBAL-PIN ADJ.
3644 100k
7625-4D LM324N
3656 10k
2617 4u7
3655 1k
3657 1k
3645 10k
7625-4C LM324N
3649 10k
3643 27k
3651 27k
3646 18k
B2
B3
CM5600
CL46620017/013.BPAR 120894

1101	A17
1102	A 3
1106	L 1
1108	K16
1109	I16
1202	L 1
1203	L 1
1204	M 1
1205	M 1
1601	E10
2301	D19
2302	G19
2303	C21
2304	G21
2305	D22
2306	B23
2307	G18
2308	E17
2309	D25
2313	A19
2314	B19
2316	D23
2602	E 6
2603	D10
2604	D 9
2605	E10
2606	E11
2607	K11
2608	O12
2609	O14
2610	I 3
2611	H 5
2612	I20
2613	E 4
2614	I27
2615	E 3
2616	M20
2617	M27
2618	M 4
2619	M 4
2621	M 5
2622	M 5
2624	M 7
2631	A 8
2632	C 7
2633	B 8
2634	C 4
3301	A19
3302	C19
3303	C19
3304	B20
3305	F19
3306	F20
3307	F20
3308	G21
3309	F21
3310	C21
3311	D22
3312	A24
3313	B24
3314	G18
3315	F28
3316	F28
3317	F29
3318	B25
3319	B26
3320	A26
3327	B27
3340	B19
3442	D24
3443	D24
3444	D25
3445	D25
3446	D25
3447	D26
3601	E15
3602	E14
3603	H 5
3604	H 6
3605	H 6
3606	O12
3607	D 6
3608	E11
3609	E11
3610	C11
3611	C11
3612	G14
3613	G14
3614	G13
3615	G13
3616	J10
3617	J11
3618	I12
3619	G 5
3620	K12
3621	K12
3622	K13
3623	K13
3624	K14
3625	K14
3626	K 7
3627	I20
3628	I23
3629	I23
3631	H22
3632	J22
3633	J23
3634	K22
3635	K23
3636	K24
3637	I25
3638	H24
3639	J26
3641	I27
3642	J27
3643	N24
3644	M25
3645	M23
3646	O23
3647	L24
3648	M23
3649	N22
3651	O22
3652	M23
3653	L22
3654	M20
3655	N26
3656	M27
3657	N27
3661	H12
3662	H12
3663	G12
3664	G12
3671	A 4
3672	A 4
3673	B 4
3674	B 5
3675	B 6
3676	B 8
3677	C 8
3678	C 8
3679	E 7
3681	B 4
5601	H 4
5602	O13
6303	B23
6325	D23
6327	D25
6332	E18
6601	D 6
6603	E15
6604	E15
6621	I17
6622	I17
6623	J17
6624	J17
6625	J17
6626	K17
6631	A 7
6632	B 7
7301	A20
7302	C20
7303	F20
7304	B26
7305	F28
7306	D24
7307	D26
7321	A24
7321	B21
7321	F21
7321	F27
7621	D 8
7622	D12
7623	J11
7624	H23
7624	I21
7624	I25
7624	J23
7625	L23
7625	M21
7625	M25
7625	N23
7631	A 4
7632	A 7
7633	B 7
7635	E 7

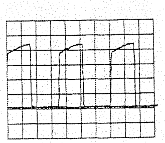
Wave forms for diagram C

C25 7346-B



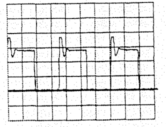
T=17.7us
Δv=1.9v AC

C26 7348-G



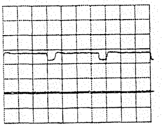
T=17.7us
Δv=8.56v AC

C27 7348-D



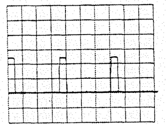
T=17.7us
Δv=182v AC

C28 7344-B



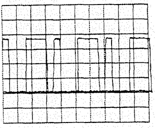
T=17.7us
Δv=2.6v AC

C29 7344-C



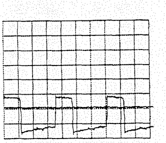
T=17.7us
Δv=12.2v AC

C30 7503-C



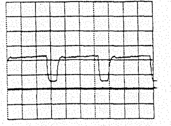
T=17.7us
Δv=172v AC

C31 7503-B



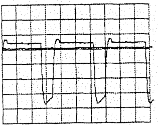
T=17.7us
Δv=2.56v AC

C32 7349-C



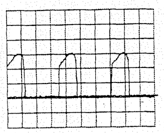
T=17.7us
Δv=8.8v AC

C33 7350-B



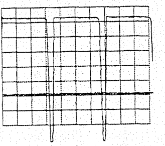
T=17.7us
Δv=8.8v AC

C34 7350-C



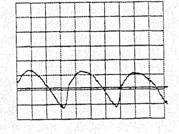
T=17.7us
Δv=3.12v AC

C35 7501-B



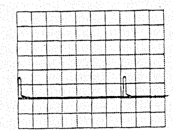
T=17.7us

C36 7514-C



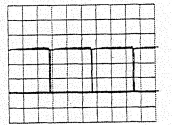
T=17.7us
Δv=4.8v AC

C37 7513-B



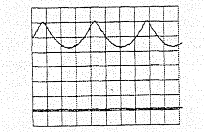
T=14.2ms
Δv=0.7v AC

C38 7513-C



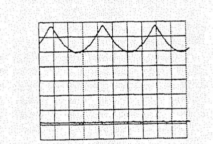
T=14.2ms
Δv=6v AC

C39 7504-G,S



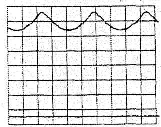
T=17.7us
Δv=35.2v AC

C40 7508-G



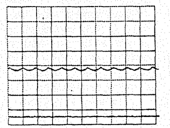
T=17.7us
Δv=36v AC

C41 7509-C



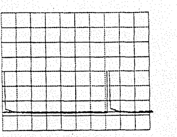
T=17.7us
Δv=24v AC

C42 7511-C



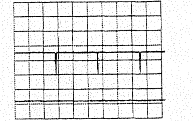
T=17.7us
Δv=10v AC

C46 7421-3



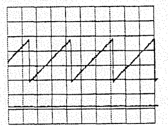
T=14.2ms
Δv=5.7v AC

C47 7421-12



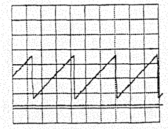
T=14.2ms
Δv=3.2v AC

C48 7421-2



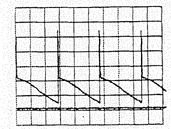
T=14.2ms
Δv=2.84v AC

C49 7421-11



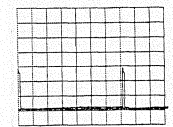
T=14.2ms
Δv=5.76v AC

C50 7421-7



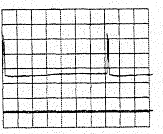
T=14.2ms
Δv=49.6v AC

C51 7421-9



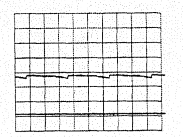
T=14.2ms
Δv=27.6v AC

C52 7421-6



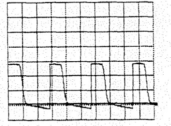
T=14.2ms
Δv=28v AC

C53 7404-B



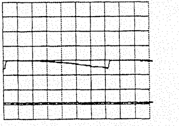
T=14.2ms
Δv=1v AC

C54 7404-C



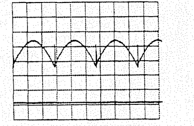
T=14.2ms
Δv=15.2v AC

C55 7404-E



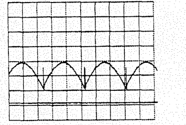
T=14.2ms
Δv=2.6v AC

C56 7422-7



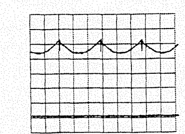
T=14.2ms
Δv=3.6v AC

C57 7406-B



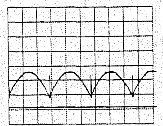
T=14.2ms
Δv=3.68v AC

C58 7406-C



T=14.2ms
Δv=1.92v AC

C59 7406-E



T=14.2ms
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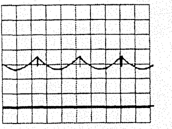
C60 7407-B



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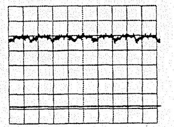
Δv=1.84v AC

C61 7325-7



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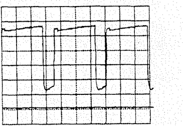
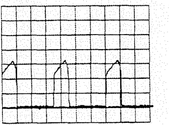
Δv=0.32v AC

C62 7352-C



T=17.7us
Δv=8.72v AC

C63 7352-E



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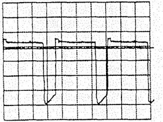
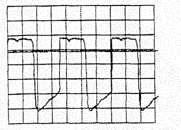
Δv=3.16v AC

C64 7353-B



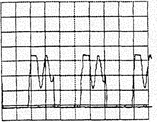
T=17.7us
Δv=8.96v AC

C65 7351-B



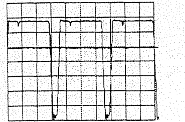
T=17.7us
Δv=5v AC

C66 7351-C



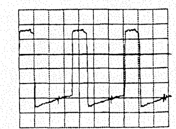
T=17.7us
Δv=70.4v AC

C67 7521-B



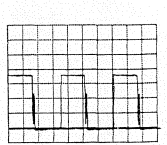
T=17.7us
Δv=672v AC

C68 7522-B



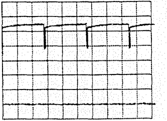
T=17.7us
Δv=2.62v AC

C69 7522-C



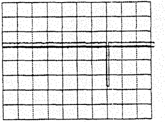
T=17.7us
Δv=188v AC

C70 7413-B



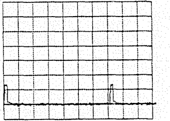
T=14.2ms
Δv=1.72v AC

C71 7413-C



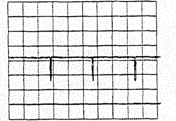
T=14.2ms
Δv=60v AC

C72 7412-B



T=14.2ms
Δv=0.68v AC

C73 7412-C



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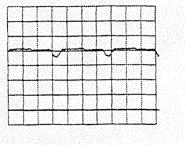
Δv=31.2v AC

C74 7523-B



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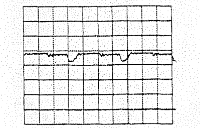
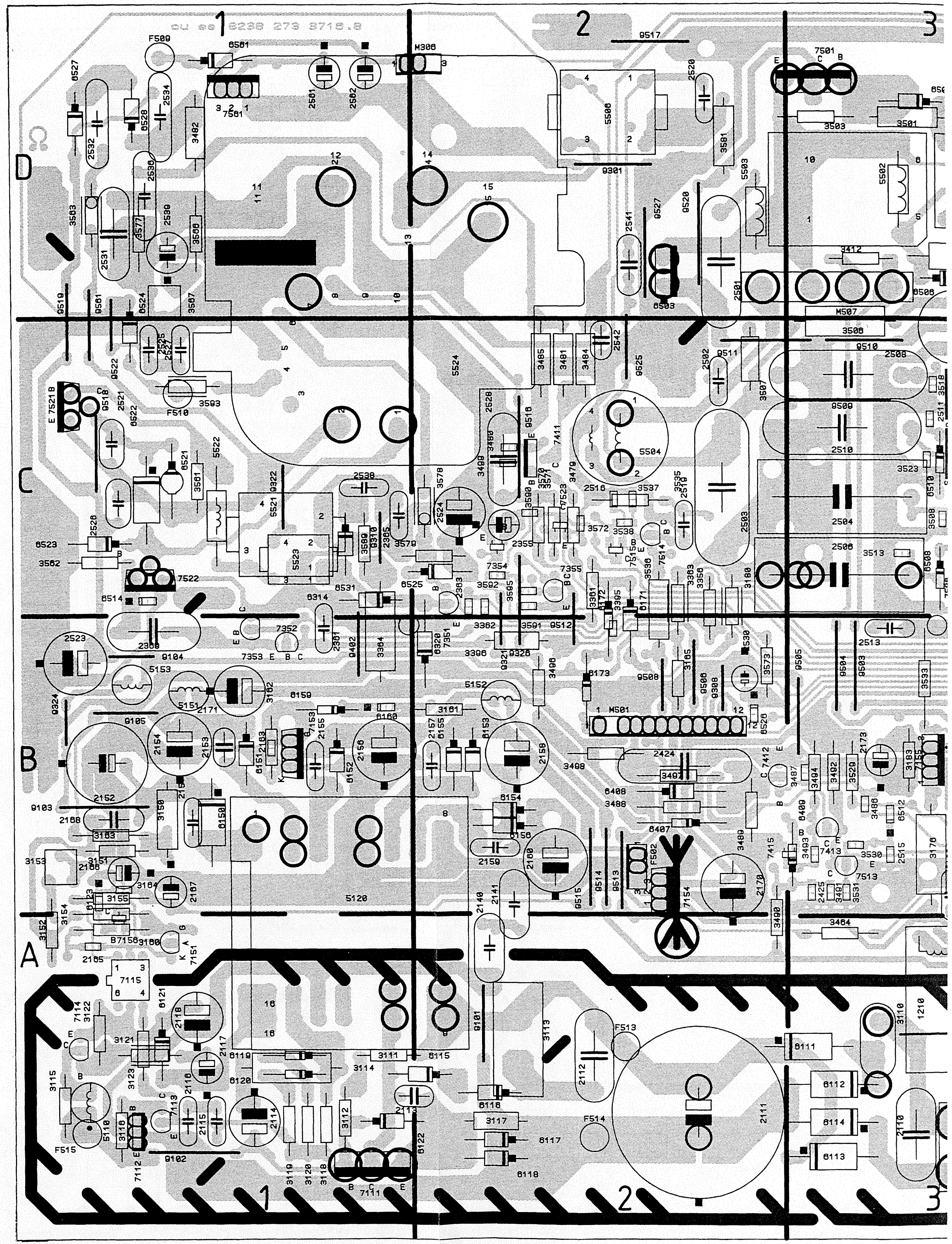
Δv=1.04v AC

C75 7523-E

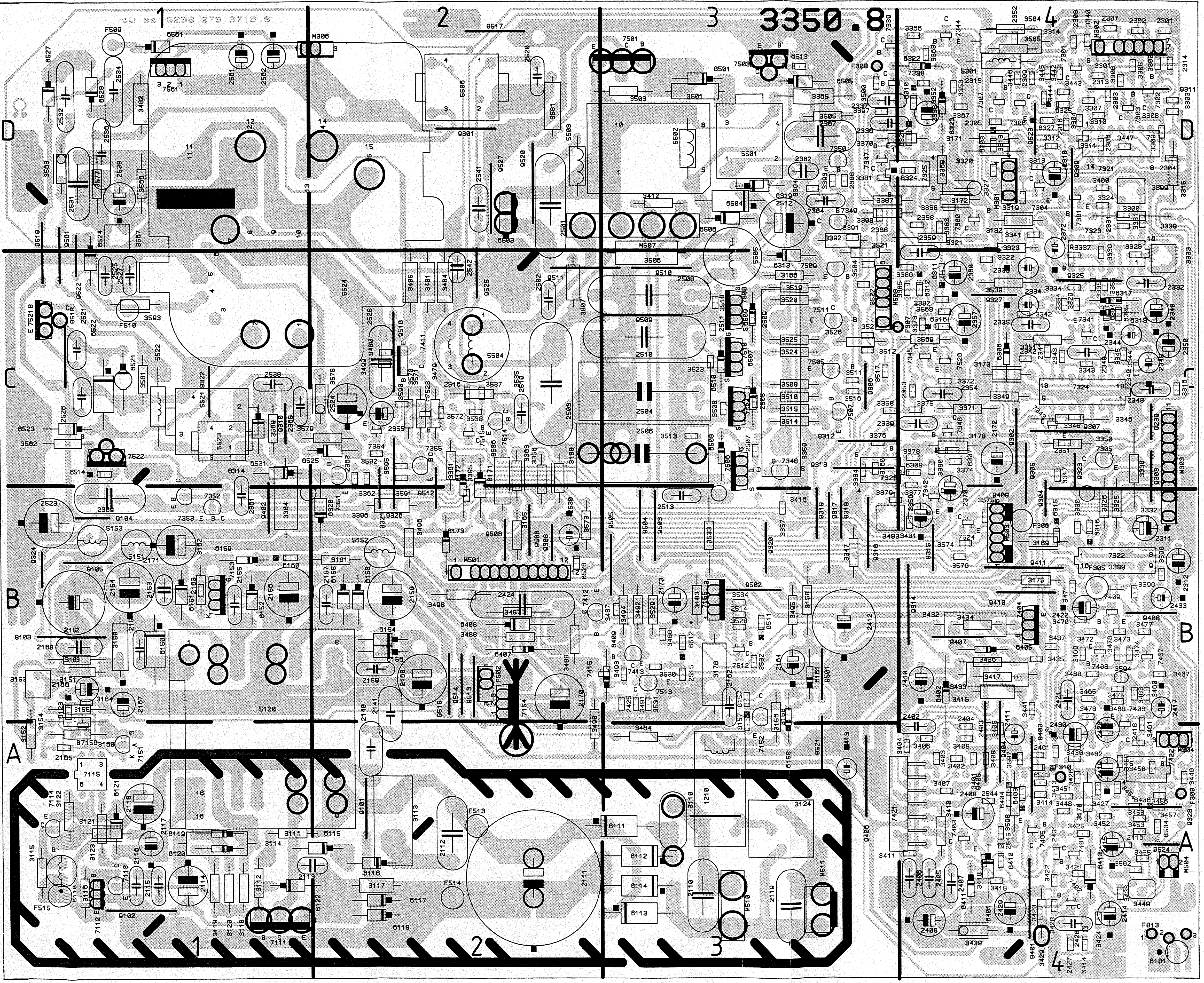


T=17.7us
Δv=1.12v AC

Deflection panel



Deflection panel



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2111	A2	2514	B3	3363	B2	3494	B3	6314	C1	9102	A1
2112	A2	2515	B3	3364	B1	3495	B3	6315	B4	9103	B1
2113	A1	2516	C2	3365	D3	3496	B2	6316	B4	9104	B1
2114	A1	2519	C2	3366	D4	3497	B2	6317	C4	9105	B1
2115	A1	2520	D2	3367	D4	3498	B2	6318	C4	9239	C4
2116	A1	2521	C1	3368	D4	3499	C2	6319	D3	9301	D2
2117	A1	2523	B1	3369	D4	3500	D3	6320	B2	9302	C4
2118	A1	2524	C2	3370	D4	3501	D3	6321	D4	9303	B4
2119	A3	2525	C1	3371	C4	3502	A4	6322	D4	9304	B4
2140	A2	2526	C1	3372	C4	3503	D3	6323	D4	9305	C4
2141	B2	2527	C1	3373	C4	3504	C3	6324	D4	9306	C3
2151	B1	2528	C2	3374	C4	3505	D3	6325	D4	9307	C4
2152	B1	2530	B2	3375	C4	3506	C3	6327	D4	9308	B2
2153	B1	2531	D1	3376	C3	3507	C2	6401	A4	9309	D4
2154	B1	2532	D1	3377	B4	3508	C3	6402	B4	9310	C1
2155	B1	2534	D1	3378	C4	3509	C3	6403	A4	9311	D4
2156	B1	2536	D1	3379	B3	3510	C3	6404	A4	9312	C3
2157	B2	2538	C1	3380	C4	3511	C3	6405	B4	9313	C3
2158	B2	2539	D1	3381	D3	3512	C3	6406	A4	9314	B4
2159	B2	2541	D2	3382	C4	3513	C3	6407	B2	9315	B4
2160	B2	2542	C2	3383	C4	3514	C3	6408	B2	9316	B3
2162	B3	2544	A4	3384	C3	3515	C3	6409	B2	9317	B3
2163	B1	2545	A4	3385	C4	3516	C3	6410	A4	9318	B3
2164	B3	2561	D1	3386	C4	3517	C3	6411	A4	9319	B3
2165	A1	2562	D1	3387	D3	3518	C3	6413	A4	9320	B3
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2167	B1	3111	A1	3389	B4	3520	C3	6501	D3	9322	C1
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2170	B2	3113	A2	3391	C3	3522	C3	6504	D3	9324	B1
2171	B1	3114	A1	3392	C3	3523	C3	6505	D3	9325	C4
2172	C4	3115	A1	3393	D3	3524	C3	6506	D3	9326	C2
2173	B3	3116	A1	3394	D3	3525	C3	6507	C3	9327	C4
2301	D4	3117	A2	3395	B2	3526	C3	6508	C3	9328	A4
2302	D4	3118	A1	3396	B2	3527	C3	6509	C3	9401	A4
2303	D4	3119	A1	3397	D3	3528	B3	6510	C3	9402	B1
2304	D4	3120	A1	3398	D3	3529	B3	6511	B3	9403	A4
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2307	D4	3123	A1	3401	A4	3532	B3	6514	C1	9406	A3
2308	D4	3124	A3	3402	A4	3533	B3	6516	C4	9407	B4
2309	D4	3150	B1	3403	A4	3534	B3	6521	C1	9408	B4
2310	D4	3151	B1	3404	A4	3535	C2	6522	C1	9409	B4
2311	B4	3152	A1	3405	A4	3536	B2	6523	C1	9410	B4
2312	B4	3153	B1	3406	A4	3537	C2	6524	C1	9411	B4
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2315	D4	3156	B3	3409	A4	3561	C1	6527	D1	9503	B3
2316	D4	3157	B3	3410	A4	3562	C1	6528	D1	9504	B3
2331	C4	3158	B3	3411	A4	3563	D1	6531	C1	9505	B3
2332	C4	3159	B3	3412	D3	3564	D4	6533	A4	9506	B2
2333	C4	3160	A1	3413	A4	3565	D4	6534	A4	9508	B2
2334	C4	3161	B2	3414	A4	3566	D1	6561	D1	9509	C3
2335	C4	3162	B1	3415	B4	3567	C1	7111	A1	9510	C3
2336	D3	3163	B1	3416	B3	3568	C4	7112	A1	9511	C2
2337	D3	3164	B1	3417	B4	3569	C4	7113	A1	9512	B2
2338	D4	3165	B2	3418	A4	3570	C2	7114	A1	9513	B2
2339	C4	3166	C3	3419	A4	3571	C2	7115	A1	9514	B2
2340	C4	3169	B4	3420	A4	3572	C2	7151	A1	9515	B2
2341	C4	3170	A4	3421	A4	3573	B2	7152	B3	9516	C2
2342	C4	3171	D4	3422	A4	3574	B4	7153	B1	9517	D2
2343	C4	3172	D4	3423	A4	3575	B4	7154	B2	9518	C1
2344	C4	3173	C4	3424	A4	3576	B4	7155	B3	9519	C1
2345	C4	3175	B4	3425	A4	3577	D1	7156	B1	9520	D2
2346	C4	3176	B3	3426	A4	3578	C2	7301	D4	9521	A3
2348	C4	3178	C4	3427	A4	3579	C2	7302	D4	9522	C1
2349	C4	3180	B2	3428	A4	3581	D2	7303	D4	9523	D4
2350	C4	3182	C4	3429	A4	3589	C1	7304	D4	9524	A4
2351	C4	3183	B3	3430	A4	3590	C2	7305	C4	9525	C2
2352	D4	3300	D4	3431	B4	3591	B2	7306	D4	9527	D2
2353	C4	3301	D4	3432	B4	3592	C2	7307	D4	9561	C1
2354	C4	3302	D4	3433	B4	3593	C1	7321	D4	F305	B4
2355	C2	3303	D4	3434	B4	3594	B4	7322	B4	F306	B4
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2358	C4	3306	D4	3437	B4	3597	A4	7325	D4	F309	A4
2359	C4	3307	D4	3438	A4	3598	A4	7326	C3	F310	A4
2360	C4	3308	D4	3439	A4	5110	A1	7338	D3	F502	B2
2361	B1	3309	D4	3440	A4	5120	A1	7339	D3	F509	D1
2362	D3	3310	D4	3441	B4	5151	B1	7341	C4	F510	C1
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2364	D3	3312	D4	3443	D4	5153	B1	7343	C4	F514	A2
2365	C1	3313	D4	3444	D4	5301	D4	7344	D4	F515	A1
2366	D3	3314	D4	3445	D4	5501	D3	7345	C4	F813	A4
2367	D3	3315	D4	3446	D4	5502	D3	7346	C4	M301	D4
2368	D3	3316	C4	3447	D4	5503	D2	7347	D3	M302	D4
2369	B1	3317	B4	3448	A4	5504	C2	7348	B3	M303	C4
2370	B4	3318	D4	3449	A4	5505	C3	7349	C3	M304	A4
2372	C4	3319	D4	3450	A4	5506	D2	7350	D3	M306	D2
2401	A4	3320	D4	3451	A4	5521	C1	7351	B2	M501	B2
2402	B4	3321	C4	3452	A4	5522	C1	7352	B1	M503	B4
2403	A4	3322	C4	3453	A4	5523	C1	7353	B1	M504	A4
2404	B4	3323	C4	3454	A4	5524	C1	7354	C2	M507	C3
2405	A4	3324	D4	3455	A4	6111	A3	7355	C2	M508	C3
2406	A4	3325	B4	3456	A4	6112	A3	7360	D4	M510	A3
2407	A4	3326	B4	3457	A4	6113	A3	7361	D4	M511	A3
2408	A4	3327	D4	3458	A4	6114	A3	7401	A4		
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2412	B3	3331	C4	3462	A4	6118	A2	7405	A4		
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2417	B4	3336	C4	3467	B4	6123	B1	7411	C2		
2418	A4	3337	C4	3468	B4	6150	B1	7412	B2		
2419	A4	3338	C4	3469	B4	6151	B1	7413	B3		
2420	A4	3339	D4	3470	B4	6152	B1	7415	B2		
2421	B4	3340	D4	3471	B4	6153	B2	7421	A4		
2422	B4	3341	C4	3472	B4	6154	B2	7422	A4		
2424	B2	3342	C4	3473	B4	6155	B2	7501	D3		
2425	B3	3343	C4	3474	B4	6156	B2	7503	D3		
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2428	A4	3345	C4	3476	B4	6158	B3	7505	C3		
2429	A4	3346	C4	3477	B4	6159	B1	7506	C3		
2430	A4	3347	B3	3478	B4	6160	B1	7507	C3		
2431	A4	3348	C4	3479	C2	6161	B3	7508	C3		
2433	B4	3349	C4	3480	C2	6171	B2	7509	C3		
2501	D2	3350	C4	3481	C2	6172	B2	7510	C3		
2502	C2	3351	C4	3482	D1	6173	B2	7511	C3		
2503	C2	3352	D4	3483	B3	6181	A4	7512	B3		
2504	C3	3353	D4	3484	C2	6303	D4	7513	B3		
2505	C3	3354	C4	3485	C2	6304	C4	7514	C2		
2506	C3	3355	C4	3486	B3	6305	C4	7515	C2		
2507	C3	3356	B2	3487	B3	6306	C4	7521	C1		
2508	C3	3357	B3	3488	B2	6307	C4	7522	C1		
2509	C3	3358	C3	3489	B2	6308	C4	7523	C2		
2510	C3	3359	C3	3490	B2	6310	D4	7524	B4		
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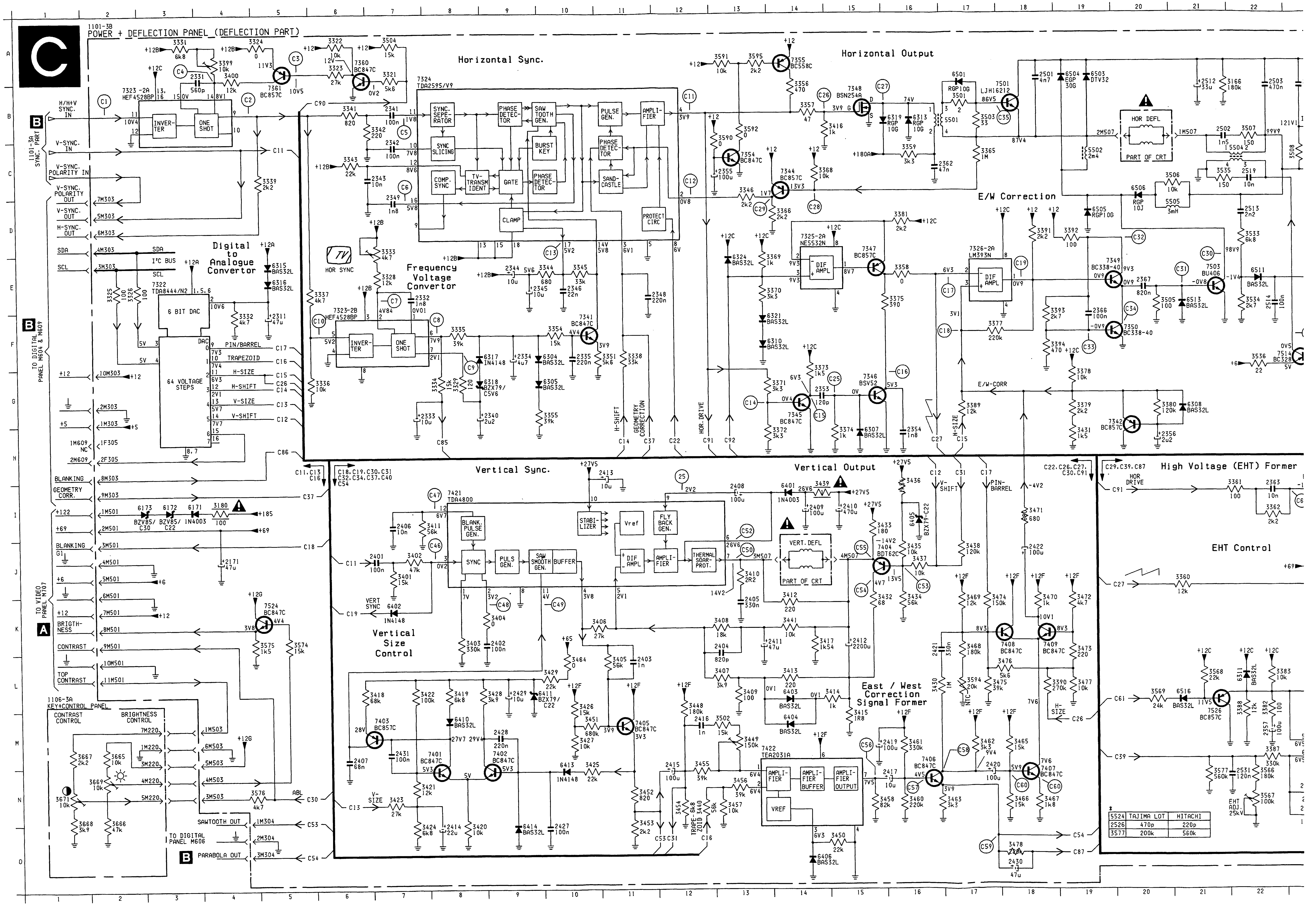
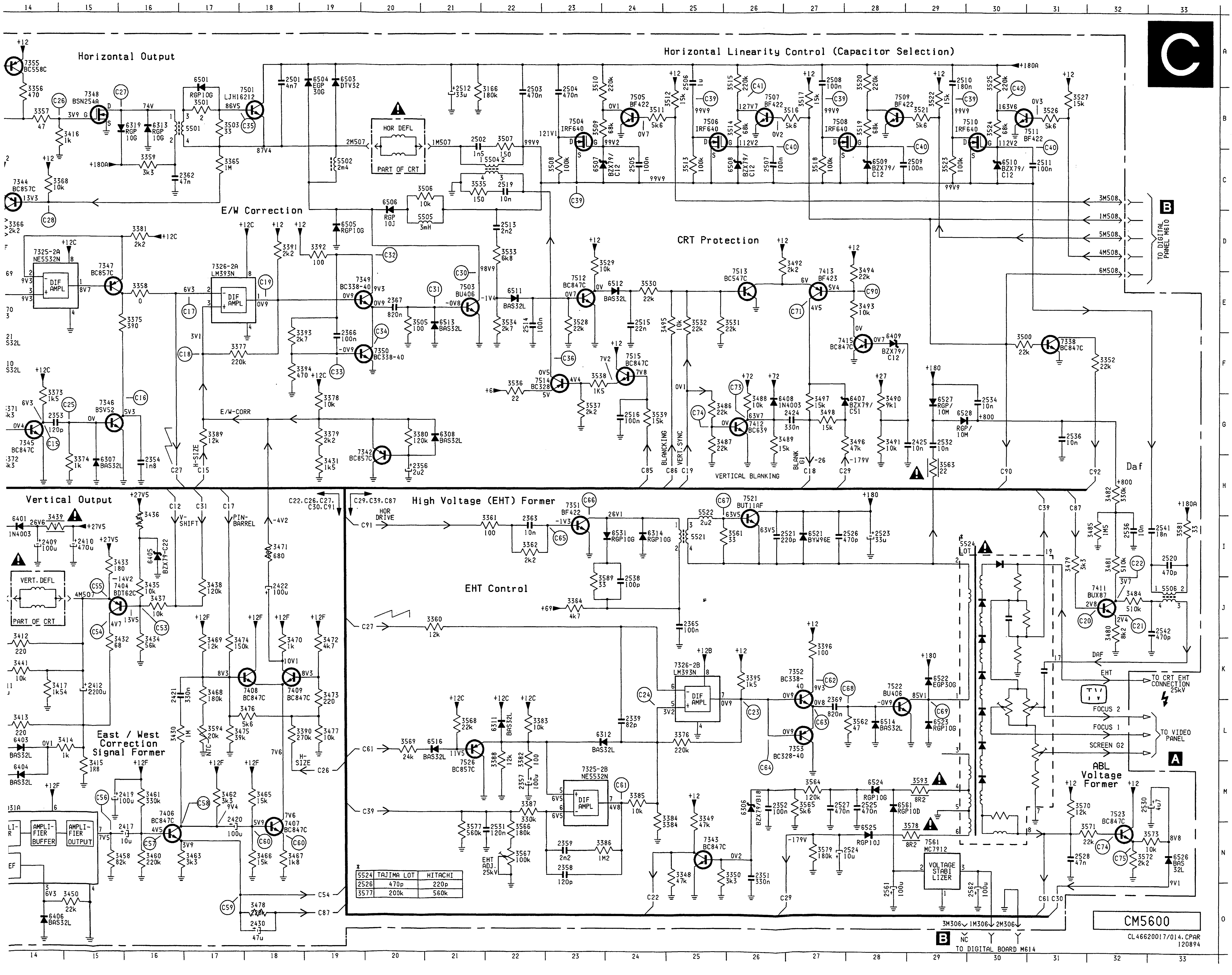

C
1101-3B
POWER + DEFLECTION PANEL (DEFLECTION PART)
Horizontal Sync.
Horizontal Output
Frequency Voltage Convertor
Digital to Analogue Convertor
HOR SYNC
E/W Correction
Vertical Sync.
Vertical Output
Vertical Size Control
East / West Correction Signal Former
High Voltage (EHT) Former
EHT Control
HOR DEFL
PART OF CRT
VERT. DEFL
1101-3A SYNC. PART
TO DIGITAL PANEL M604 & M609
TO VIDEO PANEL M707
1106-3A KEY+CONTROL PANEL
TO DIGITAL PANEL M606
7324 TDA2595/V9
7421 TDA4800
7422 TEA2031A
7322 TDA8444/N2
6 BIT DAC
64 VOLTAGE STEPS
EHT ADJ. 25kV

*

5524	TAJIMA LOT	HITACHI
2526	470p	220p
3577	200k	560k

panel


C
Horizontal Output
Horizontal Linearity Control (Capacitor Selection)
E/W Correction
CRT Protection
Vertical Output
High Voltage (EHT) Former
EHT Control
East / West Correction Signal Former
ABL Voltage Former
HOR DEFL
PART OF CRT
VERT. DEFL
PART OF CRT
TO DIGITAL PANEL M610
TO DIGITAL BOARD M614
TO CRT EHT CONNECTION 25kV
TO VIDEO PANEL
FOCUS 2
FOCUS 1
SCREEN G2
VERTICAL BLANKING
EHT ADJ. 25kV
VOLTAGE STABILIZER
CM5600
CL46620017/014.CPAR
120894

*

5524	TAJIMA LOT	HITACHI
2526	470p	220p
3577	200k	560k

1101	A 2	3339	C 5	3469	K17	6307	H15
1106	L 1	3341	B 6	3470	K18	6308	G21
2171	J 4	3342	B 7	3471	I18	6310	F13
2311	F 5	3343	C 6	3472	K19	6311	L22
2331	A 4	3344	E10	3473	L19	6312	L23
2332	E 7	3345	E10	3474	K17	6313	B16
2333	G 7	3346	C13	3475	L17	6314	I24
2334	F 9	3348	N25	3476	L18	6315	E 5
2335	F10	3349	N25	3477	L19	6316	E 5
2339	L24	3350	N25	3478	O18	6317	F 9
2340	G 9	3351	F11	3479	I31	6318	G 9
2341	B 7	3352	F32	3480	J32	6319	B16
2342	C 7	3354	F10	3481	I32	6321	F13
2343	C 7	3355	G10	3482	H32	6324	E13
2344	E 9	3356	B14	3484	J32	6401	I14
2345	E 9	3357	B14	3485	I32	6402	K 7
2346	E10	3358	E16	3486	G25	6403	L14
2348	E11	3359	C16	3487	G25	6404	M14
2349	D 7	3360	J21	3488	G26	6405	I16
2351	N26	3361	I22	3489	G26	6406	O14
2352	M26	3362	I22	3490	G28	6407	G28
2353	G14	3364	J23	3491	G28	6408	G26
2354	H16	3365	C17	3492	D27	6409	F28
2355	C13	3366	D14	3493	E28	6410	M 8
2356	H20	3368	C14	3494	E28	6411	L 9
2357	M22	3369	E13	3495	E25	6413	N10
2358	N23	3370	E13	3496	G28	6414	O 9
2359	N23	3371	G14	3497	G27	6501	A17
2362	C16	3372	H14	3498	G27	6503	A19
2363	I22	3373	G14	3500	F30	6504	A19
2365	J25	3374	H15	3501	B17	6505	D19
2366	F19	3375	E16	3502	M13	6506	C20
2367	E20	3376	L25	3503	B17	6507	C23
2369	L27	3377	F17	3504	A 7	6508	C26
2401	J 7	3378	G19	3505	E20	6509	C28
2402	K 9	3379	G19	3506	C21	6510	C30
2403	L11	3380	G20	3507	B22	6511	E22
2404	K13	3381	D16	3508	C23	6512	E24
2405	K13	3382	M22	3509	B23	6513	E21
2406	I 7	3383	L22	3510	B23	6514	L28
2407	M 6	3384	N24	3511	B24	6516	L21
2408	I13	3385	M24	3512	B25	6521	I27
2409	I14	3386	N23	3513	C25	6522	K29
2410	I15	3387	M22	3514	B26	6523	L29
2411	K13	3388	M22	3515	A26	6524	M28
2412	K15	3389	G17	3516	B27	6525	N28
2413	H11	3390	L18	3517	B27	6526	N15
2414	O 8	3391	D18	3518	C27	6527	G29
2415	N12	3392	D19	3519	B28	6528	G29
2416	M12	3393	F18	3520	A28	6531	I24
2417	N16	3394	F18	3521	B29	6561	M28
2419	M15	3395	K26	3522	B29	7322	E 3
2420	N17	3396	K27	3523	C29	7323	B 2
2421	K16	3399	A 4	3524	B30	7323	F 6
2422	J18	3400	A 4	3525	A30	7324	A 7
2424	G27	3401	J 7	3526	B31	7325	D14
2425	G29	3402	J 7	3527	B31	7325	M24
2427	O10	3403	K 8	3528	E23	7326	E17
2428	M 9	3404	K 9	3529	D23	7326	K25
2429	L 9	3405	L11	3530	E24	7338	F31
2430	O18	3406	K10	3531	E26	7341	F10
2431	M 7	3407	L13	3532	E25	7342	H20
2501	A18	3408	K13	3533	D22	7343	N25
2502	B21	3409	L13	3534	E22	7344	C14
2503	B22	3410	J13	3535	C21	7345	G14
2504	B23	3411	I 7	3536	F22	7346	G15
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2506	A25	3413	L14	3538	F23	7348	B15
2507	C26	3414	L15	3539	G24	7349	E20
2508	A27	3415	M15	3561	I26	7350	F20
2509	C29	3416	B15	3562	L28	7351	H23
2510	A29	3417	K14	3563	H29	7352	K27
2511	C31	3418	L 6	3564	M27	7353	L27
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2513	D22	3420	O 8	3566	N22	7355	A14
2514	E22	3421	N 7	3567	N22	7360	A 6
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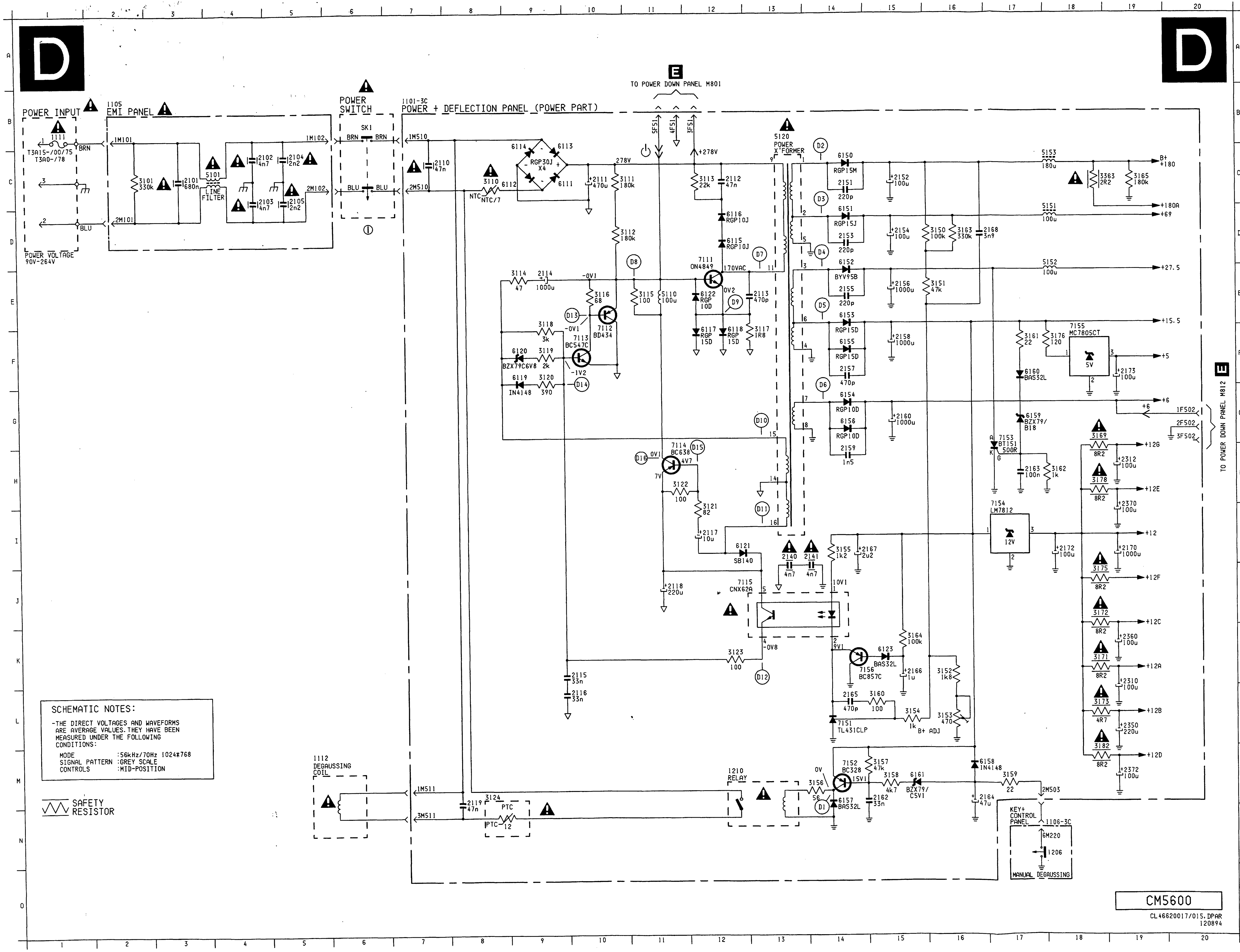
2516	G24	3423	N 7	3569	L20	7401	M 8
2519	C22	3424	O 7	3570	M31	7402	M 9
2520	I15	3425	N10	3571	N32	7403	M 7
2521	I26	3426	M10	3572	N32	7404	J15
2523	I28	3427	M10	3573	N15	7405	M11
2524	N27	3428	L 9	3574	K 5	7406	M16
2525	M28	3429	L10	3575	K 5	7407	N18
2526	I27	3430	L16	3576	N 4	7408	K17
2527	M27	3431	H19	3577	N21	7409	K18
2528	N31	3432	K15	3578	N29	7411	J32
2530	M32	3433	I15	3579	N27	7412	G26
2531	N22	3434	K16	3581	I15	7413	E27
2532	G29	3435	J16	3589	J23	7415	F28
2534	G30	3436	H16	3590	C13	7421	I 8
2536	G31	3437	J16	3591	A13	7422	M13
2536	I32	3438	J17	3592	B13	7501	B18
2538	J24	3439	I14	3593	M29	7503	E21
2541	I15	3440	N12	3594	L17	7504	B23
2542	J15	3441	K14	3595	A13	7505	B24
2561	O28	3448	M12	3665	M 2	7506	B25
2562	O30	3449	M13	3666	N 2	7507	B26
3166	B22	3450	O15	3667	M 1	7508	B28
3180	I 4	3451	M10	3668	N 1	7509	B28
3321	A 7	3452	N11	3669	N 2	7510	B30
3322	A 6	3453	N11	3671	N 1	7511	B30
3323	A 6	3454	N12	5501	B17	7512	E23
3324	A 5	3455	N12	5502	C19	7513	E26
3325	E 2	3456	N13	5504	C22	7514	F23
3326	E 2	3457	N13	5505	D21	7515	F24
3328	E 7	3458	N15	5506	J15	7521	H26
3329	G 8	3460	N16	5521	I25	7522	K28
3331	A 3	3461	M16	5522	I25	7523	M32
3332	F 4	3462	M17	5524	I29	7524	K 5
3333	D 7	3463	N17	6171	I 3	7526	M21
3334	G 8	3464	L10	6172	I 3	7561	N29
3335	F 8	3465	M18	6173	I 3		
3336	G 6	3466	N18	6304	F10		
3337	E 6	3467	N18	6305	G10		
3338	F11	3468	K17	6306	M26		

Power supply


D
D
POWER INPUT
1111
T3A15-/00/75
T3A0-/78
BRN
BLU
POWER VOLTAGE
90V-264V
1105
EMI PANEL
1M101
2M101
3101
330k
2101
680n
5101
LINE FILTER
2102
4n7
2103
4n7
2104
2n2
2105
2n2
1M102
2M102
POWER SWITCH
SK1
BRN
BLU
1101-3C
POWER + DEFLECTION PANEL (POWER PART)
1M510
2M510
2110
47n
3110
NTC
NTC/7
6112
6114
6113
6111
RGP30J
X4
278V
2111
470u
3111
180k
3112
180k
E
TO POWER DOWN PANEL M801
5F51
4F51
3F51
+278V
3113
22k
2112
47n
6116
RGP10J
6115
RGP10J
7111
ON4849
170VAC
0V2
2113
470p
3114
47
2114
1000u
-0V1
3115
100
5110
100u
3116
68
7112
BD434
7113
BC547C
3118
3k
3119
2k
3120
390
6120
BZX79C6V8
6119
1N4148
-1V2
6122
RGP
10D
6117
RGP
15D
6118
RGP
15D
3117
1R8
5120
POWER
X'FORMER
6150
RGP15M
2151
220p
6151
RGP15J
2153
220p
6152
BYV95B
2155
220p
6153
RGP15D
6155
RGP15D
2157
470p
6154
RGP10D
6156
RGP10D
2159
1n5
2152
100u
2154
100u
2156
1000u
2158
1000u
2160
1000u
3150
100k
3163
330k
2168
3n9
3151
47k
5153
180u
B+
+180
3363
2R2
3165
180k
5151
100u
+180A
+69
5152
100u
+27.5
+15.5
3161
22
3176
120
7155
MC7805CT
5V
2173
100u
+5
6160
BAS32L
+6
6159
BZX79/
B18
7153
BT151
500R
2163
100n
3162
1k
1F502
2F502
3F502
TO POWER DOWN PANEL M812
3169
8R2
+12G
2312
100u
3178
8R2
+12E
2370
100u
7154
LM7812
12V
2172
100u
+12
2170
1000u
3175
8R2
+12F
3172
8R2
+12C
2360
100u
3171
8R2
+12A
2310
100u
3173
4R7
+12B
2350
220u
3182
8R2
+12D
2372
100u
7114
BC638
4V7
7V
3122
100
3121
82
2117
10u
6121
SB140
2118
220u
2140
4n7
2141
4n7
7115
CNX62A
10V1
-0V8
3123
100
2115
33n
2116
33n
3155
1k2
2167
2u2
3164
100k
6123
BAS32L
7156
BC857C
2166
1u
3152
1k8
2165
470p
3160
100
3154
1k
B+ ADJ
3153
470
7151
TL431CLP
1112
DEGAUSSING COIL
1M511
3M511
2119
47n
3124
PTC
12
1210
RELAY
3156
56
7152
BC328
15V1
3157
47k
3158
4k7
6161
BZX79/
C5V1
2162
33n
6157
BAS32L
6158
1N4148
2164
47u
3159
22
2M503
KEY+ CONTROL PANEL
1106-3C
6M220
1206
MANUAL DEGAUSSING
CM5600
CL 46620017/015.DPAR
120894

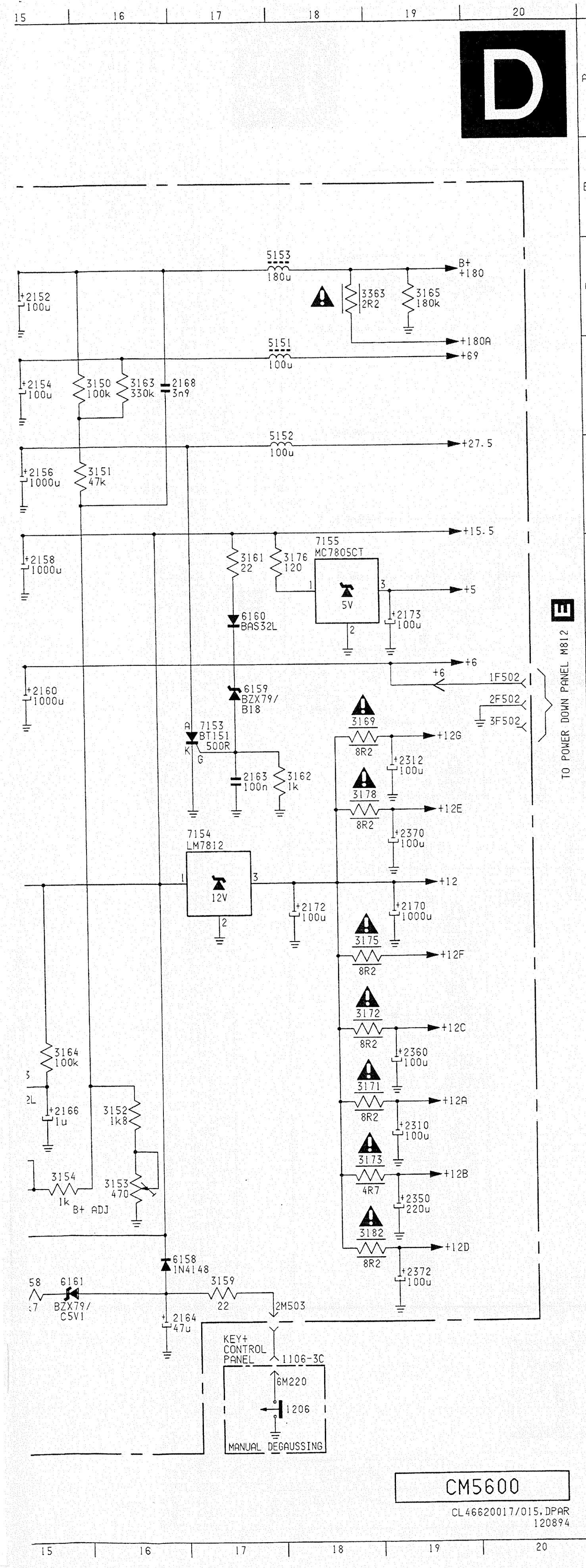
SCHEMATIC NOTES:

-THE DIRECT VOLTAGES AND WAVEFORMS ARE AVERAGE VALUES. THEY HAVE BEEN MEASURED UNDER THE FOLLOWING CONDITIONS:

MODE :56kHz/70Hz 1024*768
SIGNAL PATTERN :GREY SCALE
CONTROLS :MID-POSITION

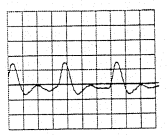
SAFETY RESISTOR

1101	B 7
1105	B 2
1106	N18
1111	B 1
1112	M 5
1206	N17
1210	M12
2101	C 3
2102	C 4
2103	C 4
2104	C 5
2105	C 5
2110	C 7
2111	C10
2112	C12
2113	E13
2114	E 9
2115	K10
2116	L10
2117	I12
2118	J11
2119	M 8
2140	I13
2141	I14
2151	C14
2152	C15
2153	D14
2154	D15
2155	E14
2156	E15
2157	F14
2158	F15
2159	H14
2160	G15
2162	M15
2163	H17
2164	M16
2165	L14
2166	K15
2167	I14
2168	D16
2170	I19
2172	I18
2173	F19
2310	L19
2312	H19
2350	L19
2360	K19
2370	I19
2372	M19
3101	C 2
3110	C 8
3111	C10
3112	D10
3113	C12
3114	E 9
3115	E11
3116	E10
3117	F13
3118	F 9
3119	F 9
3120	F 9
3121	I12
3122	H11
3123	K12
3124	M 8
3150	D16
3151	E16
3152	K16
3153	L16
3154	L15
3155	I14
3156	M14
3157	M15
3158	M15
3159	M17
3160	L15
3161	F17
3162	H18
3163	D16
3164	K15
3165	C19
3169	G18
3171	K18
3172	J18
3173	L18
3175	J18
3176	F18
3178	H18
3182	M18
3363	C18
5101	C 4
5110	E11
5120	B13
5151	D18
5152	E18
5153	C18
6111	C 9
6112	C 9
6113	C 9
6114	C 9
6115	D12
6116	D12
6117	F12
6118	F12
6119	F 9
6120	F 9
6121	I12
6122	E12
6123	K15
6150	C14
6151	D14
6152	E14
6153	E14
6154	G14
6155	F14
6156	G14
6157	M14
6158	M16
6159	G17
6160	F17
6161	M15
7111	D12
7112	E10
7113	F10
7114	H11
7115	J13
7151	L14
7152	M14
7153	G17
7154	I17
7155	F18
7156	K14


D
15
16
17
18
19
20
5153 180u
B+ +180
3363 2R2
3165 180k
2152 100u
5151 100u
+180A
+69
2154 100u
3150 100k
3163 330k
2168 3n9
5152 100u
+27.5
2156 1000u
3151 47k
+15.5
2158 1000u
3161 22
3176 120
7155 MC7805CT
5V
+5
2173 100u
6160 BAS32L
+6
2160 1000u
6159 BZX79/ B18
1F502
2F502
3F502
TO POWER DOWN PANEL M812
E
7153 BT151 500R
2163 100n
3162 1k
3169 8R2
+12G
2312 100u
3178 8R2
+12E
2370 100u
7154 LM7812
12V
+12
2172 100u
2170 1000u
3175 8R2
+12F
3172 8R2
+12C
2360 100u
3171 8R2
+12A
2310 100u
3173 4R7
+12B
2350 220u
3182 8R2
+12D
2372 100u
3164 100k
2166 1u
3152 1k8
3154 1k
3153 470
B+ ADJ
6158 1N4148
6161 BZX79/ C5V1
3159 22
2164 47u
2M503
KEY+ CONTROL PANEL
1106-3C
6M220
1206
MANUAL DEGAUSSING
CM5600
CL46620017/015.DPAR 120894

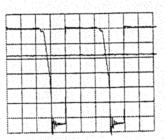
1101	B 7
1105	B 2
1106	N18
1111	B 1
1112	M 5
1206	N17
1210	M12
2101	C 3
2102	C 4
2103	C 4
2104	C 5
2105	C 5
2110	C 7
2111	C10
2112	C12
2113	E13
2114	E 9
2115	K10
2116	L10
2117	I12
2118	J11
2119	M 8
2140	I13
2141	I14
2151	C14
2152	C15
2153	D14
2154	D15
2155	E14
2156	E15
2157	F14
2158	F15
2159	H14
2160	G15
2162	M15
2163	H17
2164	M16
2165	L14
2166	K15
2167	I14
2168	D16
2170	I19
2172	I18
2173	F19
2310	L19
2312	H19
2350	L19
2360	K19
2370	I19
2372	M19
3101	C 2
3110	C 8
3111	C10
3112	D10
3113	C12
3114	E 9
3115	E11
3116	E10
3117	F13
3118	F 9
3119	F 9
3120	F 9
3121	I12
3122	H11
3123	K12
3124	M 8
3150	D16
3151	E16
3152	K16
3153	L16
3154	L15
3155	I14
3156	M14
3157	M15
3158	M15
3159	M17
3160	L15
3161	F17
3162	H18
3163	D16
3164	K15
3165	C19
3169	G18
3171	K18
3172	J18
3173	L18
3175	J18
3176	F18
3178	H18
3182	M18
3363	C18
5101	C 4
5110	E11
5120	B13
5151	D18
5152	E18
5153	C18
6111	C 9
6112	C 9
6113	C 9
6114	C 9
6115	D12
6116	D12
6117	F12
6118	F12
6119	F 9
6120	F 9
6121	I12
6122	E12
6123	K15
6150	C14
6151	D14
6152	E14
6153	E14
6154	G14
6155	F14
6156	G14
6157	M14
6158	M16
6159	G17
6160	F17
6161	M15
7111	D12
7112	E10
7113	F10
7114	H11
7115	J13
7151	L14
7152	M14
7153	G17
7154	I17
7155	F18
7156	K14

D1 7512-C



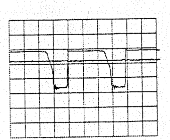
T=17.7us
Δv=1.08v AC

D2 5120-1



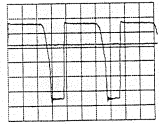
T=20.0us
Δv=736v AC

D3 5120-2



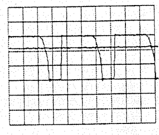
T=19.7us
Δv=284v AC

D4 5120-3



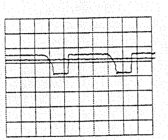
T=19.2us
Δv=108v AC

D5 5120-6



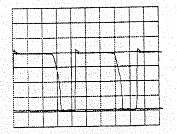
T=18.2us
Δv=63.2v AC

D6 5120-7



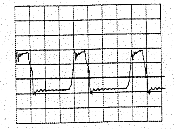
T=21.5us
Δv=28v AC

D7 5120-11



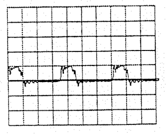
T=21.2us
Δv=416v AC

D8 7111-B



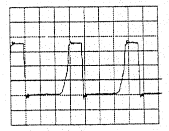
T=19.7us
Δv=3.04v AC

D9 7111-E



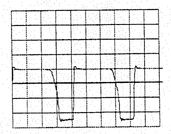
T=17.9us
Δv=1.4v AC

D10 5120-15



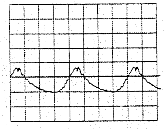
T=19.4us
Δv=19.8v AC

D11 5120-16



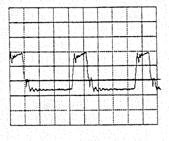
T=20.8us
Δv=18.8v AC

D12 7115-4



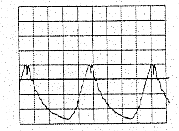
T=20.0us
Δv=3.4v AC

D13 7112-B



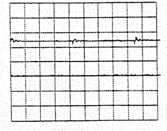
T=21.6us
Δv=2.48v AC

D14 7113-B̌



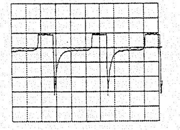
T=21.7us
Δv=3.68v AC

D15 7114-B



T=21.2us
Δv=0.88v AC

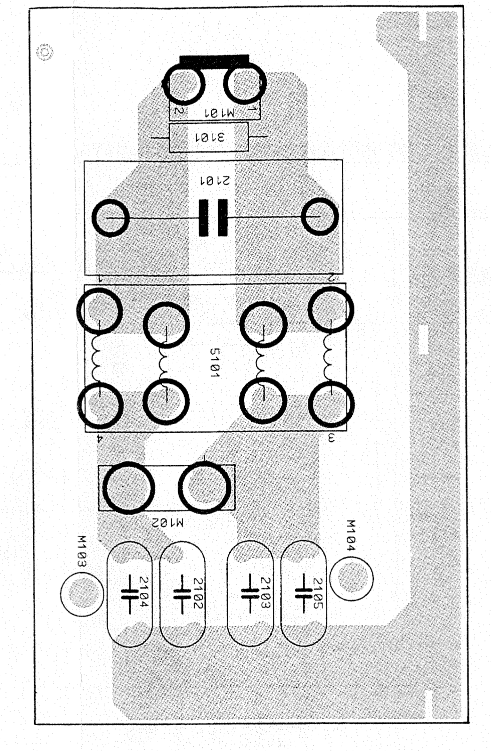
D16 7114-C



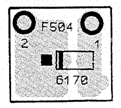
T=18.2us
Δv=20.8v AC

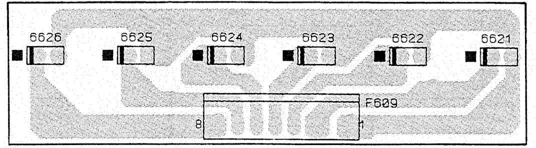
EMI panel / Power down panel

EMI panel


M101
3101
2101
5101
M102
M103
M104
2104
2102
2103
2105

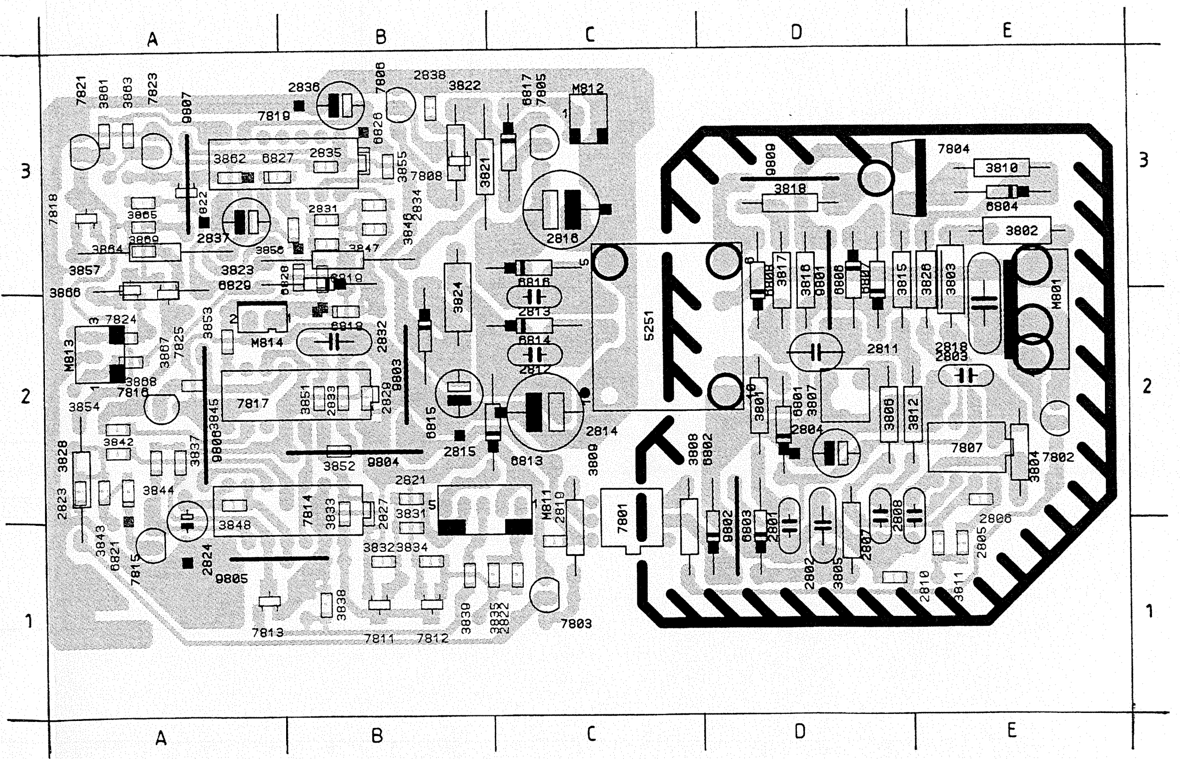
Power indicator


F504
2
1
6170

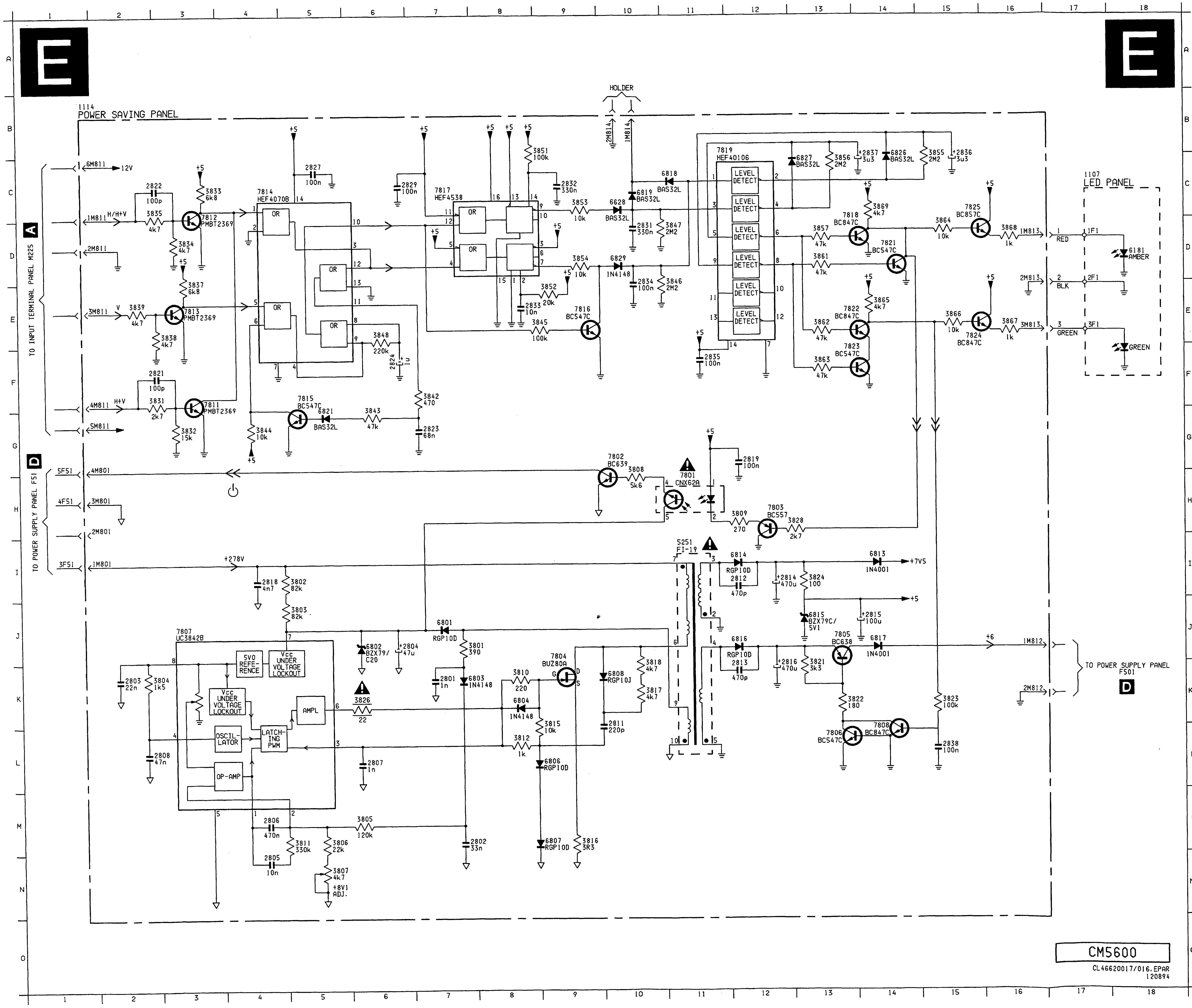

6626
6625
6624
6623
6622
6621
F509
8
1

Power down panel

2801	D1
2802	D1
2803	E2
2804	D2
2805	E1
2806	E2
2807	D1
2808	D1
2810	D1
2811	D2
2812	C2
2813	C2
2814	C2
2815	B2
2816	C3
2818	E2
2819	C1
2821	B2
2822	C1
2823	A2
2824	A1
2827	B1
2829	B2
2831	B3
2832	B2
2833	B2
2834	B3
2835	B3
2836	B3
2837	A3
2838	B3
2838	B3
3801	D2
3802	E3
3803	E2
3804	E2
3805	D1
3806	D2
3807	D2
3808	C1
3809	C1
3810	E3
3811	E1
3812	D2
3815	D2
3816	D2
3817	D2
3818	D3
3821	B3
3822	B3
3823	B3
3824	B2
3826	E2
3828	A2
3831	B1
3832	B1
3833	B1
3834	B1
3835	B1
3837	A2
3838	B1
3839	B1
3842	A2
3843	A2
3844	A2
3845	A2
3846	B3
3847	B3
3848	A2
3851	B2
3852	B2
3853	A2
3854	A2
3855	B3
3856	B3
3857	A3
3861	A3
3862	A3
3863	A3
3864	A3
3865	A3
3866	A2
3867	A2
3868	A2
3869	A3
5251	C2
6801	D2
6802	D1
6803	D1
6804	E3
6806	D2
6807	D2
6808	D2
6813	B2
6814	C2
6815	B2
6816	C3
6817	C3
6818	B2
6819	B3
6821	A2
6826	B3
6827	A3
6828	B3
6829	B2
7801	C1
7802	E2
7803	C1
7804	D3
7805	C3
7806	B3
7807	E2
7808	B3
7811	B1
7812	B1
7813	A1
7814	B1
7815	A1
7816	A2
7817	B2
7818	A3
7819	B3
7821	A3
7822	A3
7823	A3
7824	A2
7825	A2
9801	D2
9802	D1
9803	B2
9804	B2
9805	A1
9806	A2
9807	A3
9809	D3
M801	E2
M811	B1
M812	C3
M813	A2
M814	A2


A
B
C
D
E
1
2
3
M812
5251
M801
M813
M814
M811

Power down panel


E
1114
POWER SAVING PANEL
HOLDER
2M814
1M814
TO INPUT TERMINAL PANEL M225
A
6M811
12V
1M811
H/H+V
2M811
3M811
V
4M811
H+V
5M811
2822
100p
3835
4k7
3833
6k8
7812
PMBT2369
3834
4k7
3837
6k8
3839
4k7
7813
PMBT2369
3838
4k7
2821
100p
3831
2k7
7811
PMBT2369
3832
15k
+5
7814
HEF4070B
OR
2827
100n
2829
100n
7817
HEF4538
3851
100k
2832
330n
3853
10k
6628
BAS32L
6818
BAS32L
6819
BAS32L
2831
330n
3847
2M2
3854
10k
6829
1N4148
2834
100n
3846
2M2
3852
20k
2833
10n
3845
100k
7816
BC547C
3848
220k
2824
1u
3842
470
2823
68n
3843
47k
6821
BAS32L
7815
BC547C
3844
10k
7819
HEF40106
LEVEL DETECT
6827
BAS32L
3856
2M2
2837
3u3
6826
BAS32L
3855
2M2
2836
3u3
3869
4k7
7818
BC847C
3857
47k
7821
BC547C
3861
47k
3864
10k
7825
BC857C
3868
1k
1M813
3865
4k7
7822
BC847C
3862
47k
7823
BC547C
3863
47k
3866
10k
7824
BC847C
3867
1k
2M813
3M813
2835
100n
1107
LED PANEL
1
RED
1F1
6181
AMBER
2
BLK
2F1
3
GREEN
3F1
GREEN
TO POWER SUPPLY PANEL F51
D
5F51
4M801
4F51
3M801
2M801
3F51
1M801
+278V
7802
BC639
3808
5k6
7801
CNX62A
2819
100n
3809
270
7803
BC557
3828
2k7
2818
4n7
3802
82k
3803
82k
5251
F1-19
6814
RGP10D
2812
470p
2814
470u
3824
100
6813
1N4001
+7V5
+5
6815
BZX79C/
5V1
2815
100u
6816
RGP10D
2813
470p
2816
470u
3821
3k3
7805
BC638
6817
1N4001
+6
1M812
TO POWER SUPPLY PANEL
F501
2M812
3822
180
3823
100k
7806
BC547C
7808
BC847C
2838
100n
7807
UC3842B
5V0 REFE-RENCE
Vcc UNDER VOLTAGE LOCKOUT
Vcc UNDER VOLTAGE LOCKOUT
AMPL
OSCIL-LATOR
LATCH-ING PWM
OP-AMP
2803
22n
3804
1k5
2808
47n
6801
RGP10D
6802
BZX79/
C20
2804
47u
3801
390
2801
1n
6803
1N4148
3826
22
2807
1n
3810
220
6804
1N4148
3812
1k
7804
BUZ80A
3815
10k
6806
RGP10D
6808
RGP10J
3818
4k7
3817
4k7
2811
220p
2806
470n
3811
330k
3806
22k
2805
10n
3807
4k7
+8V1
ADJ.
3805
120k
2802
33n
6807
RGP10D
3816
3R3
CM5600
CL46620017/016.EPAR
120894

1107	C17	7813	E 3
1114	B 1	7814	C 4
2801	K 7	7815	F 5
2802	M 7	7816	E 9
2803	K 2	7817	C 7
2804	J 6	7818	D14
2805	N 4	7819	B11
2806	M 4	7821	D14
2807	L 6	7822	E14
2808	L 2	7823	F14
2811	L10	7824	E16
2812	I12	7825	C16
2813	K12		
2814	I12		
2815	J14		
2816	K12		
2818	I 4		
2819	G12		
2821	F 3		
2822	C 3		
2823	G 7		
2824	F 6		
2827	C 5		
2829	C 6		
2831	D10		
2832	C 9		
2833	E 8		
2834	E10		
2835	F11		
2836	C15		
2837	C14		
2838	L15		
3801	J 7		
3802	I 5		
3803	J 5		
3804	K 2		
3805	M 6		
3806	M 5		
3807	N 5		
3808	H10		
3809	H12		
3810	K 8		
3811	M 5		
3812	L 8		
3815	L 9		
3816	M 9		
3817	K10		
3818	K10		
3821	K13		
3822	K13		
3823	K15		
3824	I13		
3826	K 6		
3828	H13		
3831	F 3		
3832	G 3		
3833	C 3		
3834	D 3		
3835	C 3		
3837	E 3		
3838	E 3		
3839	E 2		
3842	F 7		
3843	G 6		
3844	G 4		
3845	E 9		
3846	E11		
3847	D11		
3848	E 6		
3851	B 8		
3852	E 9		
3853	C 9		
3854	D 9		
3855	C15		
3856	C13		
3857	D13		
3861	D13		
3862	E13		
3863	F13		
3864	D15		
3865	E14		
3866	E15		
3867	E16		
3868	D16		
3869	C14		
5251	I11		
6181	D15		
6628	C10		
6801	J 7		
6802	J 6		
6803	K 7		
6804	K 8		
6806	L 9		
6807	M 9		
6808	K10		
6813	I14		
6814	I12		
6815	J13		
6816	J12		
6817	J14		
6818	C11		
6819	C10		
6821	G 5		
6826	C14		
6827	C13		
6829	D10		
7801	H11		
7802	G10		
7803	H12		
7804	J 9		
7805	J13		
7806	L13		
7807	J 3		
7808	L14		
7811	F 3		
7812	C 3		

7. Electrical instructions

General
When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with an "ati vga 1024 v6-1.04/Ph beta 4" interface card (1024 * 768) is used as the video signal source.

Installation instructions for the ati interface card:

- Place the monitor (if possible) in east-west direction.
- Place the ati interface card in the computer.
- Select the "vsetup" file from the "utility disk" belonging to the card.
- Select "8 bits" or "16 bits" rom operation depends on the computer type.
- Select "analog monitor".
- Select "magnavox cm5000" as the monitor type.
- Re-boot your computer again.

Put the floppy disk with the "service test software package" in the computer and select the test pattern indicated for the following settings.

1. Settings on the pcb's (see fig. 7.1)

1.1 B+ supply voltage (3153), Power saving (3807,8.1 Vadj)

- Video signal : cross-hatch pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Set the brightness front control 3669 and the contrast front control 3671 to the minimum position.
- Pre-set trimming pot-meter 3153 in mid-position.
- Connect a dc voltmeter between the "+" pole of capacitor 2152 (on power supply) and ground (common ground).
- Set the B+ trimming pot-meter 3153 so that the reading on the DC voltmeter is 180 V +/- 0.5 V.
- Connect a DC voltmeter between the "+" pole of capacitor 2814 (on power down panel) and ground (common ground).
- Set the trimming potentiometer 3807 so that the reading on the DC voltmeter is 8.1 ± 0.2VDC

1.2 High-voltage EHT (3567)

- Connect a "high-voltage voltmeter" between the high-voltage connection of the picture tube and earth.
- Set the EHT trimming pot-meter 3567 so that the "high-voltage voltmeter" reads 25 KV +/- 0.2 KV.
- Connect a DC voltmeter between the "+" pole of the capacitor 2814 (on the power down panel) and ground (common ground).
- Set the trimmng potentionmeter 3807 so that the reading on the DC voltmeter is 8.1 ± 0.2 VDC

1.3 Horizontal synchronization (3333)

- Video signal : cross-hatch pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Position both the brightness control 3669 and the contrast control 3671 in the mechanical central position.
- Connect a dc voltmeter to the junction of 2344/2345 and ground. (Nearly to IC 7324).
- Adjust trimming pot-meter 3333 (nearly to IC 7323) for a dc voltage 5.9 V +/- 0.2 V reading.

1.4 LCD contrast adjustment (3606)

- Adjust potentiometer 3606 (contrast control for LCD module) to get an overall sharpness as well as foreground and background characteristics.

1.5 Focus setting

* Focus 1 (vertical focus), middle key on line output transformer.
* Focus 2 (horizontal focus), top key on line output transformer.

- Signal : apply a signal of "@" pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Set the brightness front control 3669 at mechanical mid-position and contrast front control 3671 at mechanical max-position.
- Set the V focus key so that the sharpness of the vertical lines is optimum in the east and west of the screen.
- Set the H focus key so that the sharpness of the horizontal lines is optimum in the top and down of the screen.

1.6 Cut-off points of the picture tube (3781, 3782, 3783)

* VG2 (bottom key on line output transformer).
* Cut-off points of the picture tube (3781, 3782, 3783).

- Signal : black pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Set input level switch 1207 at 0.7 Vpp position.
- Place the trimming pot-meters 3781, 3782, 3783 and the sub-contrast pot-meter 3765 to the central position for pre-setting.
- Set the VG2 setting key to the minimum position.
- Set the brightness front control 3669 at center click-point and the contrast front control 3671 at mechanical min-position.
- Using the VG2 setting key, increase the VG2 voltage until a colour is just visible (the colour may be red, green or blue).
- Then set the cut-off points trimming pot-meters belonging to the two colours not yet visible (3781, 3782 or 3783) so that an optimum white background colour is obtained.
- Set the contrast front control 3671 to maximum in order to check that the background colour remains the same even at maximum contrast. Then set the contrast front control 3671 to the central position again.

1.7 White "D" (3791, 3792)

* R. G. B. Amplification (3791, 3792)
* Sub-contrast (3765)
* Manual degaussing the monitor before setting

- Signal: White pattern in the 1024 * 768 with 56kHz/70Hz.
- Set the brightness front control 3669 at center click-point and the contrast front control 3671 at mechanical max-position.
- Set the trimming pot-meters 3791 and 3792 so that an optimum white colour is produced in the white window.

Sub-contrast (3765)

* Method 1 (with photometer)

- Signal: White window (5cm square) pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Place the photometer in the center of the screen.
- Set the sub-contrast control 3765 so that the photometer shows 35 +/- 2 foot lamber.
- Using the contrast front control 3761, slowly adjust the contrast from maximum to minimum in order to check that "white" remains the same.

* Method 2 (without photometer)

- Signal: white pattern in the 1024 * 768 with 56kHz/70Hz mode.
- Set the contrast front control 3671 and the brightness front control 3669 to maximum and the sub-contrast control 3765 in mid-position.
- Then turn up the sub-contrast control 3765 slowly until the brightness no longer increase. This happens when the ABL (automatic beam-current limiter) comes into operation.

2. Factory default modes

General
In the factory the most popular modes are stored in the memory (default modes). The default called M01to M12. Changing a default mode is possible by closing 1 or more of the 2 jumpers (M607,M608) on the digital panel.

Below in the table the combinations are mentioned.

	M607	**M608**	**function**
2.1	open	open	factory defaults protection
2.2	open	short	picture size adjustment for factory defaults
2.3	short	do'nt care	IC7621 (microprocessor) no function

Note 1.
During the adjustment, do not remove or remount the jumpers to prevent any component damaged.

Note 2.
When remove or remount the jumpers, the monitor must be turned off.

Note 3.
For the off-line of finished goods, all jumpers (M607,M608) are under "open" position.

Note 4.
IC7621 (microprocessor) shut down for the alternative factory default during production.It's factory used only.

3. Picture geometry settings

3.1 Picture geometry setting (M01 to M12, excl. M03,M07,M10,M11 and M12)

General

- Set brightness front control 3669 at center click position and the contrast front control 3671 in the mechanical max-position.
- Short service jumper M608 pin 1 AND pin 2.
- Apply a cross-hatch pattern in the 640 * 400 with 31.5KHz/70Hz mode.

3.1.1 Horizontal picture centering

- Press front control "SEL" key (>) to select "set H-shift" function.
- Press front control "+" or "-" key to adjust horizontal phase so that the horizontal centering of the picture is correct on the screen.

3.1.2 Picture width

- Press front control "SEL" key (>) to select "set H-size" function.
- Press front control "+" or "-" key to adjust horizontal width so that the picture width is 350 +/- 3 mm.

3.1.3 Vertical picture centering

- Press front control "SEL" key (>) to select "set V-shift" function.
- Press front control "+" or "-" key to adjust vertical phase so that the vertical centering of the picture is correct on the screen.

3.1.4 Picture height

- Press front control "SEL" key (>) to select "set V-size" function.
- Press front control "+" or "-" key to adjust vertical height so that the picture height is 270 +/- 3 mm.

3.1.5 East-west pincushion distortion

- Press front control "SEL" key (>) to select "PIN/BARREL" function.
- Press front control "+" or "-" key to adjust linearity so that the vertical lines on the right and left of the picture are straight.

3.1.6 Trapezoid distortion

- Press front control "SEL" key (>) to select "TRAPEZOID" function.
- Press front control "+" or "-" key to adjust trapezoid distortion so that an optimum square cross-hatch pattern is obtained.

3.1.7 Press "SAV" key (◇) to save the modes parameters

3.1.8 Parallelogram and Barrel distortion

- Adjust potmeter 3637 to get an optimum square cross-hatch pattern on the screen.
- Adjust potmeter 3644 so that the parallel lines on the top and the bottom of the picture are straight.

3.1.9 Turn off the monitor

3.1.10 Open the jumper M608 to prevent any hamper for new setting protection.

3.1.11 Apply following video signal with cross-hatch pattern in different frequency and resolution for the settings of M02 to M09.
Repeat each time the steps 3.1.1 to 3.1.7.

- M02	640 * 480
- M04	800 * 600
- M05	800 * 600
- M06	800 * 600
- M08	1024 * 768
- M09	1024 * 768

3.2 Picture geometry setting, M03,M07,M10,M11,M12 (special modes)

General

- Short service jumper M608 pin 1 and pin 2.
- Turn on the monitor.
- Set brightness front control 3669 at censer click position and the contrast front control 3671 in the mechanical max-position.

For the above mentioned special modes a pattern generator (e.g. Chroma 2000 or equivalent) or video adaptor (up to 82 KHz) is needed as signal source.

3.2.1 *Special mode (M03)*

For the chroma 2000 timing chart for special mode M03 see below.

*** M03 640 * 480 35KHz/67Hz pixel MHz = 30.24**

Horizontal		Vertical	
frame border	= o.Ooous	frame border	= 0.000mS
total size	= 28.571uS	total size	= 15.000mS
display size	= 21.164uS	display size	= 13.714mS
rear porch	= 3.175uS	rear porch	= 1.114mS
sync width	= 2.116uS	sync width	= 0.086mS
sync polarity	= - sync on green	sync polarity	= - sync on green

Then repeat the steps 3.1.1 To 3.1.7

3.2.2 *Special mode (M07)*

For the chroma 2000 timing chart for special mode M07 see below.

*** M07 832 * 624 49.73KHz/74.55Hz pixel MHz = 57.280**

Horizontal		Vertical	
frame border	= 0.000us	frame border	= 0.000mS
total size	= 20.110uS	total size	= 13.410mS
display size	= 14.520uS	display size	= 12.550mS
rear porch	= 3.910uS	rear porch	= 0.784mS
sync width	= 1.117uS	sync width	= 0.060mS
sync polarity	= +	sync polarity	= +

Then repeat the steps 3.1.1 To 3.1.7

3.2.3 *Special mode (M10)*

For the chroma 2000 timing chart for special mode M10 see below.

*** M10 1280 * 1024 64.028KHz/60.01Hz pixel MHz = 108.592**

Horizontal		Vertical	
frame border	= 0.00uS	frame border	= 0.00mS
total size	= 15.62uS	total size	= 16.670mS
display size	= 11.875uS	display size	= 16.000mS
rear porch	= 2.0uS	rear porch	= 0.580mS
sync width	= 1.0uS	sync width	= 0.080mS
sync polarity	= - sync on green	sync polarity	= - sync on green

Then repeat the steps 3.1.1 To 3.1.7

3.2.4 *Special mode (M11)*

For the chroma 2000 timing chart for special mode M11 see below.

*** M11 1280 * 1024 77.13KHz/72.56Hz pixel MHz = 130.816**

Horizontal		Vertical	
frame border	= 0.00uS	frame border	= 0.00mS
total size	= 12.957uS	total size	= 13.784mS
display size	= 9.785uS	display size	= 13.276mS
rear porch	= 1.712uS	rear porch	= 0.427mS
sync width	= 1.223uS	sync width	= 0.038mS
sync polarity	= - sync on green	sync polarity	= - sync on green

Then repeat the steps 3.1.1 To 3.1.7

3.2.5 *Special mode (M12)*

For the chroma 2000 timing chart for special mode M12 see below.

*** M12 1280 * 1024 81.135KHz/76.1Hz pixel Mhz = 135.008**

Horizontal		Vertical	
frame border	= 0.00uS	frame border	= 0.00mS
total size	= 12.325uS	total size	= 13.138mS
display size	= 9.481uS	display size	= 12.621mS
rear porch	= 2.133uS	rear porch	= 0.394mS
sync width	= 0.474uS	sync width	= 0.099mS
sync polarity	= - sync on green	sync polarity	= - sync on green

Then repeat the steps 3.1.1 To 3.1.7

3.2.6 *Turn off the monitor*

3.2.7 *Open the jumper M608 to prevent any hamper for new setting potection*

4. Power down (M814, on power panel)

M814	**Function**
OPEN	with power saving function.
SHORT	without power saving function.

5. Static convergence (see fig 7.2)

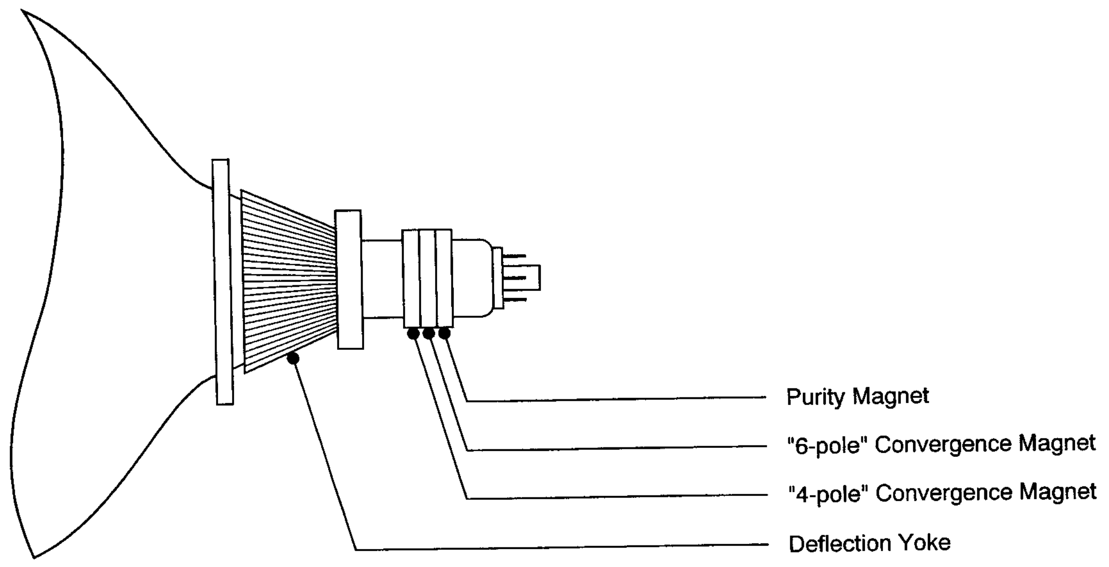
Introduction

Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the picture-tube. These are the 4-pole magnet and the 6-pole magnet.
The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the other.
The 6-pole magnet moves the outermost electron beams (R, B and G) parallel in the opposite direction from the other.
The magnetic field of the above magnets do not affect the centre of the picture-tube neck.

Setting

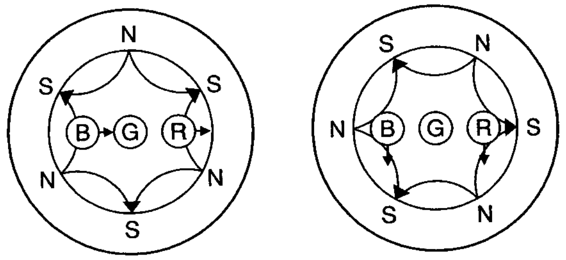
- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly (see focus setting, paragraph 1.5).
- Signal: cross-hatch pattern in the 1024*768 56 KHz/70 Hz mode.
- Set the "tabs" of the 4-pole magnet in the neutral position. This is when the "tabs" are opposite one another. In this position the magnets do not affect the deflection of the "R" and "B" electron beams.
- Set the "tabs" of the 6-pole magnet in the neutral position, this is when the "tabs" are opposite one another. In this position the magnets do not affect the deflection of the "R", "B" and "G" electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6-pole magnet again.

STATIC CONVERGENCE SYSTEM


Purity Magnet
"6-pole" Convergence Magnet
"4-pole" Convergence Magnet
Deflection Yoke

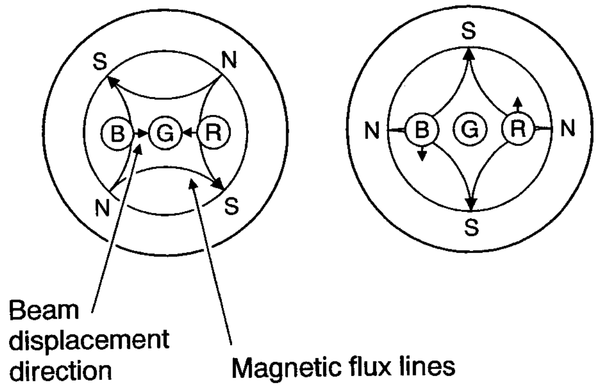
"6-pole"

Beam motion produced by the 6-pole convergence magnet


N
S
S
B
G
R
N
N
S
S
N
N
S
S
N

"4-pole"

Beam motion produced by the 4-pole convergence magnet

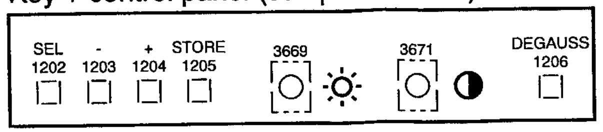

S
N
B
G
R
N
S
S
N
N
S
Beam displacement direction
Magnetic flux lines

4CM6282
CL 36532054/013
220393

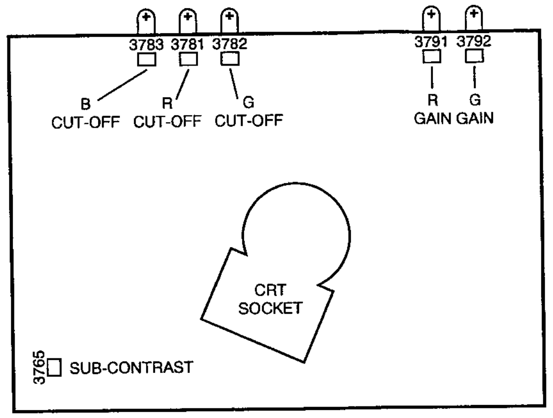
Fig. 7.2

LOCATION OF ADJUSTING COMPONENTS

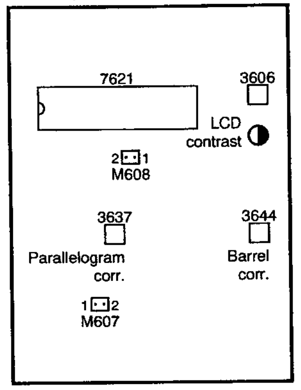
Key + control panel (component view)


SEL 1202
- 1203
+ 1204
STORE 1205
3669
3671
DEGAUSS 1206

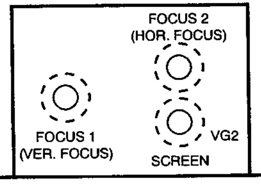
Video panel (component view)


3783
3781
3782
B CUT-OFF
R CUT-OFF
G CUT-OFF
3791
3792
R GAIN
G GAIN
CRT SOCKET
3765
SUB-CONTRAST

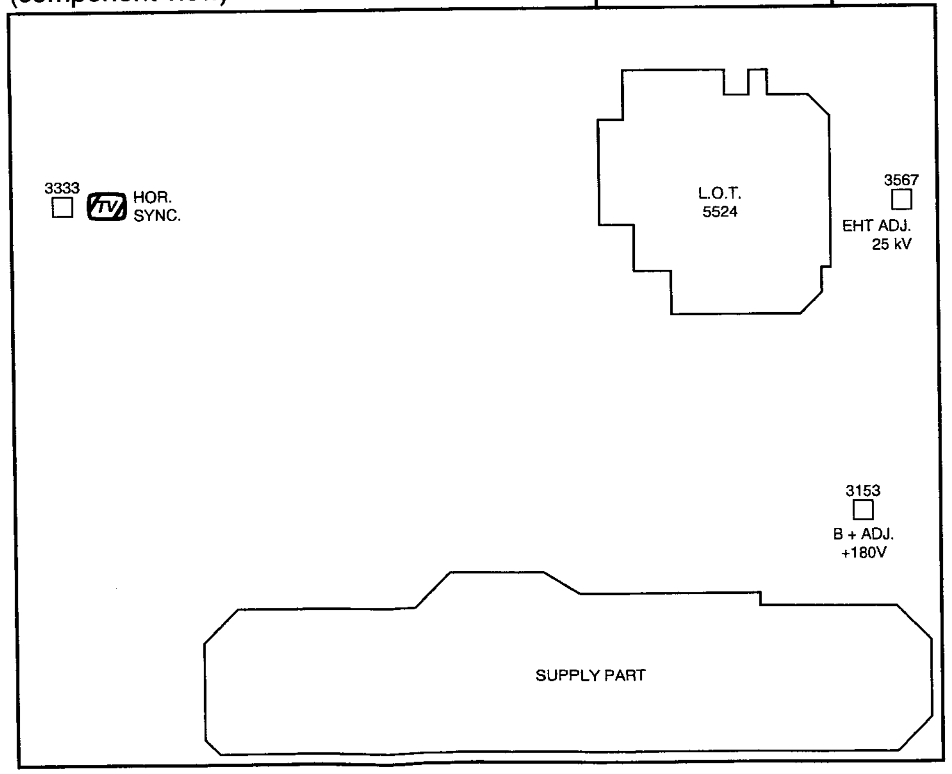
Digital panel (component view)


7621
3606
LCD contrast
2 1
M608
3637
Parallelogram corr.
3644
Barrel corr.
1 2
M607

L.O.T. (side view)


FOCUS 2 (HOR. FOCUS)
FOCUS 1 (VER. FOCUS)
VG2
SCREEN

Power + deflection panel (component view)


3333
HOR. SYNC.
L.O.T. 5524
3567
EHT ADJ. 25 kV
3153
B + ADJ. +180V
SUPPLY PART

REMARK: ○ = hole in screening plate

4CM6282
CL 36532113/08
080793

Fig. 7.1

8. Repair tips

Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance.

Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

1.1 General cautions on handling and storage

a. Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.

b. Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.
The capacitance or resistance value of the SMDs may be affected by this.

c. Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

a. Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 8.1A)

b. While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 8.1B).

c. Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 8.1C).

Caution on removal:

a. When handling the soldering iron, use suitable pressure and be careful.

b. When removing the chip, do not use undue force with the pair of tweezers.

c. The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250°C).

d. The chip, once removed, must **never** be reused.

1.3 Attachment of SMDs

a. Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig. 8.2A).

b. Next complete the soldering of the terminals of the component (see Fig. 8.2B).

Caution when attaching SMDs:

a. When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible; care must be taken to avoid damage to the terminals of the SMDs themselves.

b. Keep the SMD's body in contact with the printed board when soldering.

c. The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250°C).

d. Soldering should not be done outside the solder land.

e. Soldering flux (of rosin) may be used, but should not be acidic.

f. After soldering, let the SMD cool down gradually at room temperature.

g. The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 8.3).

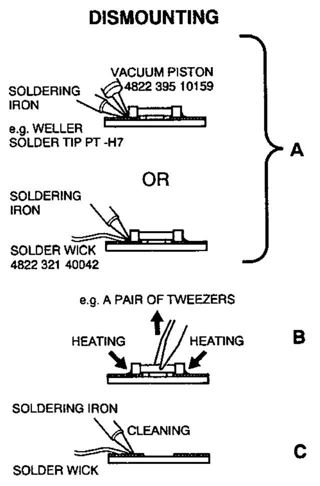

DISMOUNTING
VACUUM PISTON
4822 395 10159
SOLDERING IRON
e.g. WELLER SOLDER TIP PT -H7
OR
SOLDERING IRON
SOLDER WICK
4822 321 40042
A
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C

Fig. 8.1

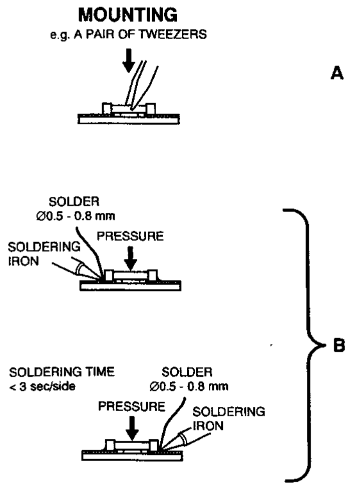

MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
Ø0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
SOLDERING TIME
< 3 sec/side
SOLDER
Ø0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
B

Fig. 8.2

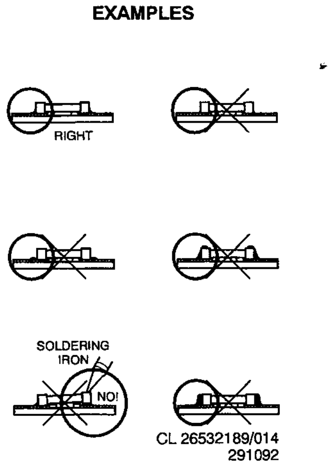
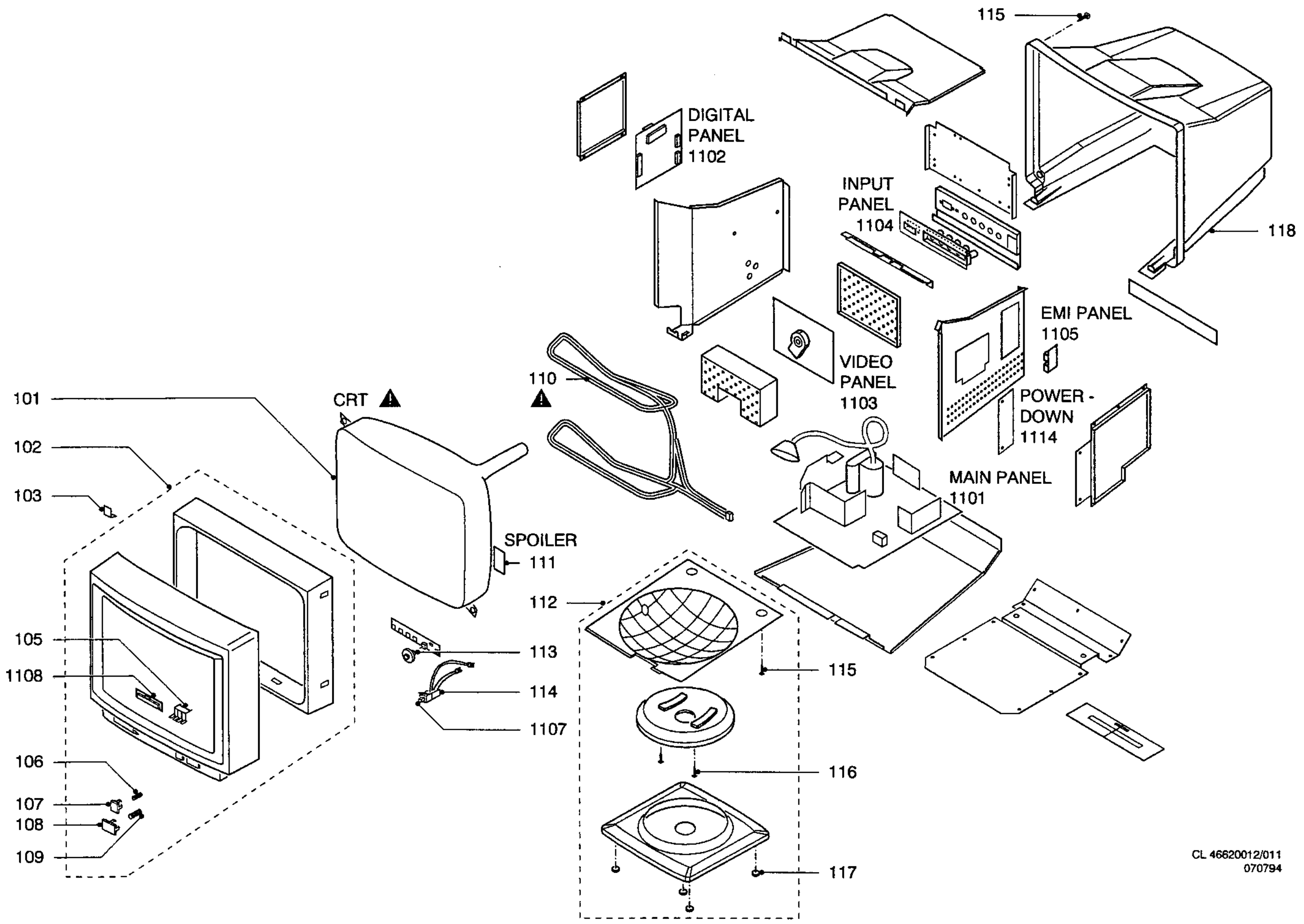

EXAMPLES
RIGHT
SOLDERING IRON
NO!
CL 26532189/014
291092

Fig. 8.3

10 Spare parts list


115
DIGITAL PANEL 1102
INPUT PANEL 1104
118
EMI PANEL 1105
VIDEO PANEL 1103
POWER - DOWN 1114
MAIN PANEL 1101
101
CRT
110
102
103
SPOILER 111
112
105
1108
113
114
1107
115
116
106
107
108
109
117
CL 46620012/011
070794

MECHANICAL PARTS:

101 ▲	4822 131 20618	Picture tube (1100)
102	4822 430 30277	Frontcomplete
103	4822 277 11369	Rocker switch
105	4822 410 63338	Knob control
106	4822 492 52243	Spring for degaussing knob
107	4822 410 61226	Degaussing knob
108	4822 410 61225	Power switch button
109	4822 492 52242	Spring for power switch button
110 ▲	4822 157 63223	Degaussing coil (1112)
111	4822 526 20183	Spoiler
112	4822 462 10582	Pedestal complete
113	4822 413 31817	Knob brightness/contrast
114	4822 276 11504	Power switch
115	4822 502 13763	Screw for rear cover/pedestal
116	4822 502 13763	Screw for pedestal
117	4822 462 40831	Pad for pedestal
118	4822 438 20267	Rear cover
	4822 502 21358	Screw to fix rear shield
1108	4822 381 11319	Lens power indicator

MISCELLANEOUS

▲	4822 265 30955	AC inlet socket
▲	4822 321 10982	Power cord
▲	4822 070 33152	Fuse 3.15 A
	4822 321 62322	RGB cable
	4822 321 61529	Interface cable

Spare parts list

1101 Deflection panel [C][D]

	4822 265 41422	connector 6P M503
	4822 265 30375	connector 4P M507
	4822 265 20564	connector 2P M510
	4822 265 30891	connector 2P M511
1210▲	4822 280 70358	relay

⊣⊢

2110▲	4822 121 43385	47nF 20% 250V
2111	4822 124 80568	470µF 20% 400V
2112	4822 121 43516	47nF 400V
2113	4822 126 11454	470pF 2KV
2114	4822 124 42172	1000µF 16V
2115	4822 121 43912	33nF 10% 100V
2116	4822 121 43912	33nF 10% 100V
2117	4822 124 23539	10µF 20% 50V
2118	4822 124 23439	220µF 20% 50V
2119	4822 121 43385	47nF 20% 250V
2140▲	4822 122 33535	4.7nF 20% 400V
2141▲	4822 122 33535	4.7nF 20% 400V
2151	4822 126 12356	220pF 10% 2KV
2152	4822 124 80834	100µF 20% 250V
2153	4822 122 33645	220pF 500V
2154	4822 124 40755	100µF 20% 100V
2155	4822 122 33645	220pF 500V
2156	4822 124 42195	1000µF 35V
2157	4822 122 33646	470pF 10% 500V
2158	4822 124 42195	1000µF 35V
2159	5322 122 32331	1nF 10% 100V
2160	4822 124 40214	1000µF 20% 25V
2162	4822 121 43912	33nF 10% 100V
2163	4822 122 33496	100nF 10% 63V
2164	4822 124 41751	47µF 20% 50V
2165	4822 122 31727	470pF 2% 63V
2166	4822 124 22669	1µF 20% 50V
2167	4822 124 42031	2.2µF 20% 25V
2168	4822 121 42071	3.9nF 10% 400V
2170	4822 124 42339	1000µF 25V
2171	4822 124 42359	47µF 100V
2172	4822 124 22336	100µF 20% 40V
2173	4822 124 22336	100µF 20% 40V
2303	4822 122 33496	100nF 10% 63V
2304	4822 122 33496	100nF 10% 63V
2305	4822 122 31784	4.7nF 10% 50V
2306	4822 122 31766	120pF 2% 63V
2307	4822 122 32442	10nF 50V
2308	4822 122 33496	100nF 10% 63V
2309	5322 122 31647	1nF 10% 63V
2310	4822 124 22678	100µF 20% 16V
2311	4822 124 22681	47µF 20% 16V
2312	4822 124 22678	100µF 20% 16V
2313	4822 122 31773	560pF 2% 63V
2314	4822 122 31773	560pF 2% 63V
2316	4822 126 11456	330nF 10% 63V
2331	4822 122 31773	560pF 2% 63V
2332	4822 121 51166	1.8nF 2% 250V
2333	4822 124 42136	10µF 25V
2334	4822 124 41659	4.7µF 20% 25V
2335	4822 121 43699	220nF 100V
2339	4822 122 31237	82pF 2% 100V
2340	4822 124 42031	2.2µF 20% 25V
2341	4822 122 33496	100nF 10% 63V
2342	4822 122 33496	100nF 10% 63V
2343	4822 122 32442	10nF 50V
2344	4822 124 22686	10µF 16V
2345	4822 124 80235	10µF 16V
2346	4822 122 31797	22nF 10% 63V
2348	4822 121 43699	220nF 100V
2349	4822 121 51166	1.8nF 2% 250V
2350	5322 124 41817	220µF 16V
2351	4822 126 11456	330nF 10% 63V
2352	4822 122 33496	100nF 10% 63V
2353	4822 122 31766	120pF 2% 63V
2354	4822 121 51166	1.8nF 2% 250V
2355	4822 124 22678	100µF 20% 16V
2356	4822 124 42031	2.2µF 20% 25V
2357	4822 124 22678	100µF 20% 16V
2358	4822 122 31766	120pF 2% 63V
2359	5322 122 32818	2.2nF 10% 100V
2360	4822 124 22678	100µF 20% 16V
2362	4822 121 70386	47nF 10% 250V
2363	4822 122 32442	10nF 50V
2365	4822 121 43696	100nF 100V
2366	4822 122 33496	100nF 10% 63V
2367	4822 121 43905	820nF 10% 100V
2369	4822 121 43905	820nF 10% 100V
2370	4822 124 22678	100µF 20% 16V
2372	4822 124 22678	100µF 20% 16V
2401	4822 122 33496	100nF 10% 63V
2402	4822 121 43696	100nF 100V
2403	5322 122 31647	1nF 10% 63V
2404	4822 122 31974	820pF 10% 63V
2405	4822 121 43697	330nF 10% 100V
2406	4822 121 43693	10nF 100V
2407	4822 121 51637	68nF 5% 100V
2408	4822 124 22336	100µF 20% 40V
2409	4822 124 22336	100µF 20% 40V
2410	4822 124 41996	470µF 20% 35V
2411	4822 124 22681	47µF 20% 16V
2412	4822 124 21511	2200µF 20% 25V
2413	4822 124 23539	10µF 20% 50V
2414	4822 124 80132	47µF 20% 25V
2415	4822 124 22678	100µF 20% 16V
2416	5322 122 31647	1nF 10% 63V
2417	4822 124 22686	10µF 16V
2419	4822 124 22678	100µF 20% 16V
2420	4822 124 22678	100µF 20% 16V
2421	4822 121 43697	330nF 10% 100V
2422	4822 124 23539	10µF 20% 50V
2424	4822 121 43916	330nF 10% 250V
2425	4822 122 32442	10nF 50V
2427	4822 122 33496	100nF 10% 63V
2428	4822 121 43699	220nF 100V
2429	4822 124 42147	10µF 20% 100V
2430	4822 124 80132	47µF 20% 25V
2431	4822 122 33496	100nF 10% 63V
2433	4822 124 40246	4.7µF 20% 63V
2501	4822 126 12096	4.7nF 5% 1.6KV
2502	4822 126 12727	1.5nF 10% 500V
2503	4822 121 70413	470nF 5% 250V
2504	4822 121 70413	470nF 5% 250V
2505	4822 122 33496	100nF 10% 63V
2506	4822 121 70236	1µF 400V
2507	4822 122 33496	100nF 10% 63V
2508	4822 121 70478	100nF 5% 250V
2509	4822 122 33496	100nF 10% 63V
2510	4822 121 70443	180nF 5% 250V
2511	4822 122 33496	100nF 10% 63V
2512	4822 124 42161	33µF 20% 250V
2513	4822 126 10206	2.2nF 10% 500V
2514	4822 122 33496	100nF 10% 63V
2515	4822 122 31797	22nF 10% 63V
2516	4822 122 33496	100nF 10% 63V
2519	4822 122 33966	10nF 10% 50V
2520	4822 122 33646	470pF 10% 500V
2521	4822 126 13035	220pF 10% 2KV
2523	4822 124 42161	33µF 20% 250V
2524	4822 124 80531	10µF 20% 250V
2525	4822 121 43913	470nF 10% 100V
2526	4822 126 13035	220pF 10% 2KV
2527	4822 121 43913	470nF 10% 100V
2528	4822 121 40336	47nF 10% 250V
2530	4822 124 41659	4.7µF 20% 25V
2531	4822 121 70301	1µF 100V
2532	4822 126 12651	10nF 20% 2K
2534	4822 126 12651	10nF 20% 2K
2536	4822 126 12651	10nF 20% 2K
2538	4822 121 51643	4.7nF 5% 400V
2541	4822 121 70073	100nF 10% 250V
2542	4822 126 11454	470pF 2KV
2561	4822 124 22336	100µF 20% 40V
2562	4822 124 22336	100µF 20% 40V

-▭-

3110▲	4822 116 30425	7Ω NTC
3111	4822 050 21804	180k 1% 0.6W
3112	4822 050 21804	180k 1% 0.6W
3113	4822 116 80388	22k
3114	4822 116 83915	47Ω 5% 3W
3115	4822 050 21001	100Ω 1% 0.6W
3116	4822 050 26809	68Ω 1% 0.6W
3117	4822 053 10188	1Ω8 5% 1W
3118	4822 050 23002	3k 1% 0.6W
3119	4822 050 12002	2k 1% 0.4W
3120	4822 050 13901	390Ω 1% 0.4W
3121	4822 116 80542	82Ω 1W
3122	4822 050 21001	100Ω 1% 0.6W
3123	4822 050 21001	100Ω 1% 0.6W
3124▲	4822 116 40144	12Ω PTC
3150	4822 116 83964	100k 5% 2W
3151	4822 050 24703	47k 1% 0.6W
3152	4822 050 21802	1k8 1% 0.6W
3153	4822 101 10927	470Ω potmeter
3154	4822 050 11002	1k 1% 0.4W
3155	4822 050 21202	1k2 1% 0.6W
3156	4822 050 25609	56Ω 1% 0.6W
3157	4822 051 10473	47k 2% 0.25W
3158	4822 051 10472	4k7 2% 0.25W
3159	4822 116 52186	22Ω 5% 0.5W
3160	4822 050 21001	100Ω 1% 0.6W
3161	4822 116 52186	22Ω 5% 0.5W
3162	4822 050 11002	1k 1% 0.4W
3163	4822 050 23304	330k 1% 0.6W
3164	4822 051 10104	100k 2% 0.25W
3165	4822 050 21804	180k 1% 0.6W
3166	4822 050 21804	180k 1% 0.6W
3169▲	4822 052 10828	8Ω2 5% 0.33W
3171▲	4822 052 10828	8Ω2 5% 0.33W
3172▲	4822 052 10828	8Ω2 5% 0.33W
3173▲	4822 052 10478	4Ω7 5% 0.33W
3175▲	4822 052 10828	8Ω2 5% 0.33W
3176	4822 117 10366	120Ω 5% 3W
3178▲	4822 052 10828	8Ω2 5% 0.33W
3180▲	4822 052 11101	100Ω 5% 0.5W
3182▲	4822 052 10828	8Ω2 5% 0.33W
3301	4822 051 10102	1k 2% 0.25W
3302	4822 051 20222	2k2 5% 0.1W
3303	4822 051 20222	2k2 5% 0.1W
3304	4822 051 10152	1k5 2% 0.25W
3305	4822 051 20222	2k2 5% 0.1W
3306	4822 051 20222	2k2 5% 0.1W
3307	4822 051 10152	1k5 2% 0.25W
3308	4822 051 20222	2k2 5% 0.1W
3309	4822 051 10224	220k 2% 0.25W
3310	4822 051 10223	22k 2% 0.25W
3311	4822 051 10822	8k2 2% 0.25W
3312	4822 051 10103	10k 2% 0.25W
3313	4822 051 10332	3k3 2% 0.25W
3314	4822 117 11014	100Ω 5% 3W
3315	4822 050 22202	2k2 1% 0.6W
3316	4822 051 20222	2k2 5% 0.1W
3317	4822 051 10102	1k 2% 0.25W
3318	4822 051 10332	3k3 2% 0.25W
3319	4822 051 10102	1k 2% 0.25W
3320	4822 050 22202	2k2 1% 0.6W
3321	4822 116 52289	5k6 5% 0.5W
3322	4822 051 10103	10k 2% 0.25W
3323	4822 050 22703	27k 1% 0.6W
3324	4822 051 10008	0Ω 5% 0.25W
3325	4822 050 21001	100Ω 1% 0.6W
3326	4822 050 21001	100Ω 1% 0.6W
3327	4822 051 20222	2k2 5% 0.1W
3328	4822 051 10123	12k 2% 0.25W
3329	4822 051 51201	120Ω 1% 0.125W
3331	4822 051 20222	2k2 5% 0.1W
3332	4822 051 10472	4k7 2% 0.25W
3333	4822 100 11319	4k7 potmeter
3334	4822 051 10153	15k 2% 0.25W
3335	4822 051 10393	39k 2% 0.25W
3336	4822 051 10103	10k 2% 0.25W
3337	4822 051 10472	4k7 2% 0.25W
3338	4822 116 52271	33k 5% 0.5W
3339	4822 050 22202	2k2 1% 0.6W
3340	4822 051 10153	15k 2% 0.25W
3341	4822 051 10821	820Ω 2% 0.25W
3342	4822 051 10221	220Ω 2% 0.25W
3343	4822 051 10223	22k 2% 0.25W
3344	4822 051 10681	680Ω 2% 0.25W
3345	4822 051 10333	33k 2% 0.25W
3346	4822 050 22202	2k2 1% 0.6W
3348	4822 051 10473	47k 2% 0.25W
3349	4822 050 24703	47k 1% 0.6W
3350	4822 050 13302	3k3 1% 0.4W
3351	4822 050 25602	5k6 1% 0.6W
3352	4822 051 10153	15k 2% 0.25W
3354	4822 051 10153	15k 2% 0.25W
3355	4822 051 10393	39k 2% 0.25W
3356	4822 050 24701	470Ω 1% 0.6W
3357	4822 051 10479	47Ω 2% 0.25W
3358	4822 051 10008	0Ω 5% 0.25W
3359	4822 113 80634	3k3 5% 10W
3360	4822 051 10123	12k 2% 0.25W
3361	4822 050 21001	100Ω 1% 0.6W
3362	4822 051 20222	2k2 5% 0.1W
3363▲	4822 052 10228	2Ω2 5% 0.33W
3364	4822 117 10489	4k7 5% 3W
3365	4822 116 52235	1M 5% 0.5W
3366	4822 051 20222	2k2 5% 0.1W
3368	4822 051 10103	10k 2% 0.25W
3369	4822 116 80394	1k
3370	4822 050 13302	3k3 1% 0.4W
3371	4822 050 23302	3k3 1% 0.6W
3372	4822 051 10332	3k3 2% 0.25W
3373	4822 051 10152	1k5 2% 0.25W
3374	4822 051 10102	1k 2% 0.25W
3375	4822 051 10391	390Ω 2% 0.25W
3376	4822 051 10224	220k 2% 0.25W
3377	4822 051 10224	220k 2% 0.25W
3378	4822 051 10103	10k 2% 0.25W
3379	4822 051 20222	2k2 5% 0.1W
3380	4822 051 10124	120k 2% 0.25W
3381	4822 051 20222	2k2 5% 0.1W
3382	4822 051 10101	100Ω 2% 0.25W
3383	4822 051 10103	10k 2% 0.25W
3384	4822 051 10223	22k 2% 0.25W
3385	4822 051 10103	10k 2% 0.25W
3386	4822 051 10125	1M2
3387	4822 050 23304	330k 1% 0.6W
3388	4822 051 10123	12k 2% 0.25W
3389	4822 051 10223	22k 2% 0.25W
3390	4822 051 10154	150k 2% 0.25W
3391	4822 051 20222	2k2 5% 0.1W
3392	4822 116 83973	100Ω 5% 1W
3393	4822 051 10272	2k7 2% 0.25W
3394	4822 051 10471	470Ω 2% 0.25W
3395	4822 051 10152	1k5 2% 0.25W
3396	4822 116 83973	100Ω 5% 1W
3399	4822 100 20166	10k potmeter
3400	4822 051 10123	12k 2% 0.25W
3401	4822 051 10153	15k 2% 0.25W
3402	4822 051 10473	47k 2% 0.25W
3403	4822 051 10334	330k 2% 0.25W
3404	4822 051 10008	0Ω 5% 0.25W
3405	4822 051 10563	56k 2% 0.25W
3406	4822 051 10223	22k 2% 0.25W
3407	4822 051 10392	3k9 2% 0.25W
3408	4822 051 20183	18k 5% 0.1W
3409	4822 051 10101	100Ω 2% 0.25W
3410	4822 050 22208	2Ω2 1% 0.6W
3411	4822 051 10563	56k 2% 0.25W
3412	4822 050 22201	220Ω 1% 0.6W
3413	4822 051 10221	220Ω 2% 0.25W
3414	4822 051 10102	1k 2% 0.25W
3415	4822 053 10188	1Ω8 5% 1W
3416	4822 051 10102	1k 2% 0.25W
3417	4822 050 21542	1k54 1% 0.6W
3418	4822 051 10683	68k 2% 0.25W
3419	4822 051 10682	6k8 2% 0.25W
3420	4822 051 10103	10k 2% 0.25W
3421	4822 051 10153	15k 2% 0.25W
3422	4822 051 10104	100k 2% 0.25W
3423	4822 051 10473	47k 2% 0.25W
3424	4822 051 10562	5k6 2% 0.25W
3425	4822 051 10223	22k 2% 0.25W
3426	4822 051 10153	15k 2% 0.25W
3427	4822 051 10103	10k 2% 0.25W
3428	4822 051 10392	3k9 2% 0.25W
3429	4822 050 22203	22k 1% 0.6W
3430	4822 051 10274	270k 2% 0.25W
3432	4822 116 83962	68Ω 5% 3W
3433	4822 117 10367	180Ω 5% 3W
3434	4822 050 25603	56k 1% 0.6W
3435	4822 051 10103	10k 2% 0.25W
3436	4822 050 21542	1k54 1% 0.6W
3437	4822 051 10103	10k 2% 0.25W
3438	4822 051 10124	120k 2% 0.25W
3439▲	4822 052 10108	1Ω 5% 0.33W
3440	4822 051 10124	120k 2% 0.25W
3441	4822 051 10103	10k 2% 0.25W
3442	4822 051 10103	10k 2% 0.25W
3443	4822 051 10105	1M 5% 0.25W
3444	4822 051 10682	6k8 2% 0.25W
3445	4822 051 10103	10k 2% 0.25W
3446	4822 051 10562	5k6 2% 0.25W
3447	4822 051 10103	10k 2% 0.25W
3448	4822 051 10184	180k 2% 0.25W
3449	4822 100 12114	150k potmeter
3450	4822 051 10223	22k 2% 0.25W
3451	4822 051 10333	33k 2% 0.25W
3452	4822 051 10821	820Ω 2% 0.25W
3453	4822 051 10103	10k 2% 0.25W
3454	4822 051 10682	6k8 2% 0.25W
3455	4822 051 10393	39k 2% 0.25W
3456	4822 051 10393	39k 2% 0.25W
3457	4822 051 10103	10k 2% 0.25W
3458	4822 051 10823	82k 2% 0.25W
3460	4822 051 10224	220k 2% 0.25W
3461	4822 051 10334	330k 2% 0.25W
3462	4822 051 10332	3k3 2% 0.25W
3463	4822 051 10182	1k8 2% 0.25W
3464	5322 116 51882	0Ω
3465	4822 051 10393	39k 2% 0.25W
3466	4822 051 10153	15k 2% 0.25W
3467	4822 051 10152	1k5 2% 0.25W
3468	4822 051 10184	180k 2% 0.25W
3469	4822 051 10123	12k 2% 0.25W
3470	4822 051 10102	1k 2% 0.25W
3471	4822 051 10681	680Ω 2% 0.25W
3472	4822 051 10472	4k7 2% 0.25W
3473	4822 051 10221	220Ω 2% 0.25W
3474	4822 051 10154	150k 2% 0.25W
3475	4822 051 10333	33k 2% 0.25W
3476	4822 051 10562	5k6 2% 0.25W
3477	4822 051 10103	10k 2% 0.25W
3478	4822 051 10224	220k 2% 0.25W
3479	4822 050 23302	3k3 1% 0.6W
3480	4822 051 10822	8k2 2% 0.25W
3481	4822 053 21514	510k 5% 0.5W
3482	4822 053 21334	330k 5% 0.5W
3483	4822 100 11319	4k7 potmeter
3484	4822 053 21514	510k 5% 0.5W
3485	4822 053 21155	1M5 5% 0.5W
3486	4822 051 10223	22k 2% 0.25W
3487	4822 051 10223	22k 2% 0.25W
3488	4822 050 21003	10k 1% 0.6W
3489	4822 050 21503	15k 1% 0.6W
3490	4822 050 29102	9k1 1% 0.6W
3491	4822 051 10103	10k 2% 0.25W
3492	4822 050 22202	2k2 1% 0.6W
3493	4822 051 10103	10k 2% 0.25W
3494	4822 050 22203	22k 1% 0.6W
3495	4822 050 21003	10k 1% 0.6W
3496	4822 050 24703	47k 1% 0.6W
3497	4822 050 21503	15k 1% 0.6W
3498	4822 050 21503	15k 1% 0.6W
3499	4822 051 20222	2k2 5% 0.1W
3500	4822 051 10223	22k 2% 0.25W
3501	4822 117 10506	2Ω 2W
3502	4822 051 10152	1k5 2% 0.25W
3503	4822 050 23309	33Ω 1% 0.6W
3504	4822 051 10153	15k 2% 0.25W
3505	4822 050 21001	100Ω 1% 0.6W
3506	4822 116 83914	10k 5% 3W
3507	4822 116 83041	150Ω 5% 1W
3508	4822 051 10104	100k 2% 0.25W
3509	4822 050 26803	68k 1% 0.6W
3510	4822 050 22204	220k 1% 0.6W
3511	4822 051 10562	5k6 2% 0.25W
3512	4822 051 10153	15k 2% 0.25W
3513	4822 051 10104	100k 2% 0.25W
3514	4822 050 26803	68k 1% 0.6W
3515	4822 050 22204	220k 1% 0.6W
3516	4822 051 10562	5k6 2% 0.25W
3517	4822 051 10153	15k 2% 0.25W
3518	4822 051 10104	100k 2% 0.25W
3519	4822 050 26803	68k 1% 0.6W
3520	4822 050 22204	220k 1% 0.6W
3521	4822 116 52289	5k6 5% 0.5W
3522	4822 051 10153	15k 2% 0.25W
3523	4822 051 10104	100k 2% 0.25W
3524	4822 050 26803	68k 1% 0.6W
3525	4822 050 22204	220k 1% 0.6W
3526	4822 116 52289	5k6 5% 0.5W
3527	4822 051 10153	15k 2% 0.25W
3528	4822 051 10223	22k 2% 0.25W
3529	4822 050 21003	10k 1% 0.6W
3530	4822 051 10223	22k 2% 0.25W
3531	4822 051 10223	22k 2% 0.25W
3532	4822 051 10223	22k 2% 0.25W
3533	4822 050 26802	6k8 1% 0.6W
3534	4822 051 10272	2k7 2% 0.25W
3535	4822 050 21501	150Ω 1% 0.6W
3536	4822 117 10403	22Ω 2W
3537	4822 051 20222	2k2 5% 0.1W
3538	4822 051 10152	1k5 2% 0.25W
3539	4822 050 11503	15k 1% 0.4W
3561	4822 050 23309	33Ω 1% 0.6W
3562	4822 050 24709	47Ω 1% 0.6W
3563▲	4822 052 10229	22Ω 5% 0.33W
3564	4822 116 80556	120k
3565	4822 050 25602	56k 1% 0.6W
3566	4822 050 21804	180k 1% 0.6W
3567	4822 100 11163	100k potmeter
3568	4822 051 10223	22k 2% 0.25W
3569	4822 050 22403	24k 1% 0.6W
3570	4822 050 21203	12k 1% 0.6W
3571	4822 050 22203	22k 1% 0.6W
3572	4822 051 20222	2k2 5% 0.1W
3573	4822 050 21003	10k 1% 0.6W
3574	4822 051 10153	15k 2% 0.25W
3575	4822 051 10152	1k5 2% 0.25W
3576	4822 051 10472	4k7 2% 0.25W
3577	4822 050 25604	560k 1% 0.6W
3578▲	4822 052 10828	8Ω2 5% 0.33W
3579	4822 050 21804	180k 1% 0.6W
3581	4822 117 10032	33Ω 5% 2W
3589	4822 050 26802	6k8 1% 0.6W
3590	4822 051 10224	220k 2% 0.25W
3591	4822 051 10103	10k 2% 0.25W
3592	4822 051 10008	0Ω 5% 0.25W
3593▲	4822 052 10828	8Ω2 5% 0.33W
3594	4822 116 30452	20k NTC
3595	4822 051 20222	2k2 5% 0.1W
3596	4822 051 10393	39k 2% 0.25W

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5110	4822 157 70366	100µH
5120▲	4822 146 31241	mains transformer
5151	4822 157 52234	100µH
5152	4822 157 52234	100µH
5153	4822 156 21399	180µH
5501	4822 142 40327	transformer
5502	4822 157 70604	2.4mH
5503	4822 526 10522	bead
5504	4822 157 70605	Transformer
5505	4822 157 70294	1.7mH
5506	4822 148 81279	transformer
5521	4822 148 81342	transformer
5522	4822 157 53598	2.2µH
5524▲	4822 140 10459	L.O.T.

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6111	4822 130 80572	RGP30J
6112	4822 130 80572	RGP30J
6113	4822 130 80572	RGP30J
6114	4822 130 80572	RGP30J
6115	4822 130 31393	RGP10J
6116	4822 130 31393	RGP10J
6117	5322 130 31971	RGP15D
6118	5322 130 31971	RGP15D
6119	4822 130 30621	1N4148
6120	4822 130 34278	BZX79-C6V8
6121	5322 130 81917	SB140
6122	4822 130 31607	RGP10D
6123	4822 130 80446	BAS32L
6150	5322 130 31969	RGP15M
6151	5322 130 33885	RGP15J
6152	4822 130 41486	BYV95B
6153	5322 130 31971	RGP15D
6154	4822 130 31607	RGP10D
6155	5322 130 31971	RGP15D
6156	4822 130 31607	RGP10D
6157	4822 130 80446	BAS32L
6158	4822 130 30621	1N4148
6159	4822 130 31024	BZX79-B18
6160	4822 130 80446	BAS32L
6161	4822 130 34233	BZX79-C5V1
6171	4822 130 31878	1N4003
6172	5322 130 33636	BZV85-C22
6173	5322 130 32702	BZV85-30
6303	4822 130 80446	BAS32L
6304	4822 130 80446	BAS32L
6305	4822 130 80446	BAS32L
6306	4822 130 31024	BZX79-B18
6307	4822 130 80446	BAS32L
6308	4822 130 80446	BAS32L
6310	4822 130 80446	BAS32L
6311	4822 130 80446	BAS32L
6312	4822 130 80446	BAS32L
6313	4822 130 42489	RGP10G
6314	4822 130 42489	RGP10G
6315	4822 130 80446	BAS32L
6316	4822 130 80446	BAS32L
6317	4822 130 30621	1N4148
6318	4822 130 34173	BZX79-C5V6
6319	4822 130 42489	RGP10G
6321	4822 130 80446	BAS32L
6324	4822 130 80446	BAS32L
6325	4822 130 80446	BAS32L
6327	4822 130 80446	BAS32L
6332	4822 130 31438	1N4001
6401	4822 130 31878	1N4003
6402	4822 130 30621	1N4148
6403	4822 130 80446	BAS32L
6404	4822 130 80446	BAS32L
6405	4822 130 34441	BZX79-C22
6406	4822 130 80446	BAS32L
6407	4822 130 34257	BZX79-C51
6408	4822 130 31878	1N4003
6409	4822 130 34197	BZX79-C12
6410	4822 130 80446	BAS32L
6411	4822 130 34441	BZX79-C22
6413	4822 130 30621	1N4148
6414	4822 130 80446	BAS32L
6501	4822 130 42489	RGP10G
6503	4822 130 82584	DTV32-1500B
6504	4822 130 83128	EGP30G
6505	4822 130 42489	RGP10G
6506	4822 130 31393	RGP10J
6507	4822 130 34197	BZX79-C12
6508	4822 130 34197	BZX79-C12
6509	4822 130 34197	BZX79-C12
6510	4822 130 34197	BZX79-C12
6511	4822 130 80446	BAS32L
6512	4822 130 80446	BAS32L
6513	4822 130 80446	BAS32L
6514	4822 130 80446	BAS32L
6516	4822 130 80446	BAS32L
6521	5322 130 32042	BYW96E
6522	4822 130 83128	EGP30G
6523	4822 130 42489	RGP10G
6524	4822 130 42489	RGP10G
6525	4822 130 31393	RGP10J
6526	4822 130 80446	BAS32L
6527	4822 130 32148	RGP10M
6528	4822 130 32148	RGP10M
6531	4822 130 42489	RGP10G
6534	4822 130 80446	BAS32L
6561	4822 130 31607	RGP10D

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7111	4822 130 63431	ON4849
7112	4822 130 40995	BD434
7113	4822 130 44503	BC547C
7114	4822 130 41087	BC638
7115▲	4822 130 80908	CNX62A
7151	4822 209 81397	TL431CLP
7152	4822 130 44104	BC328
7153	5322 130 24081	BT151-500R
7154	4822 209 81726	L7812CV
7155	4822 209 80891	MC7805CT
7156	5322 130 42756	BC857C
7301	5322 130 44336	BSV52
7302	5322 130 44336	BSV52
7303	5322 130 42755	BC847C
7304	5322 130 44336	BSV52
7305	4822 130 44503	BC547C
7306	5322 130 42756	BC857C
7307	5322 130 42755	BC847C
7321	4822 209 10223	HEF4077BP
7322	4822 209 63995	TDA8444/N2
7323	4822 209 10866	HEF4528BP
7324	4822 209 63299	TDA2595/V9
7325	5322 209 86234	NE5532N
7326	4822 209 80797	LM393N
7338	5322 130 42755	BC847C
7341	5322 130 42755	BC847C
7342	5322 130 42756	BC857C
7343	5322 130 42755	BC847C
7344	5322 130 42756	BC857C
7345	5322 130 42755	BC847C
7346	5322 130 44336	BSV52
7347	5322 130 42756	BC857C
7348	4822 130 63081	BSN254A
7349	5322 130 44779	BC338-40
7350	5322 130 44779	BC338-40
7351	4822 130 41782	BF422
7352	5322 130 44779	BC338-40
7353	4822 130 41715	BC328-40
7354	5322 130 42755	BC847C
7355	5322 130 60068	BC558C
7360	5322 130 42755	BC847C
7361	5322 130 42756	BC857C
7401	5322 130 42755	BC847C
7402	5322 130 42755	BC847C
7403	5322 130 42756	BC857C
7404	4822 130 63662	BDX54F
7405	5322 130 42755	BC847C
7406	5322 130 42755	BC847C
7407	5322 130 42755	BC847C
7408	5322 130 42755	BC847C
7409	5322 130 42755	BC847C
7411	5322 130 44918	BUX87
7412	4822 130 41053	BC639
7413	4822 130 41646	BF423
7415	5322 130 42755	BC847C
7421	4822 209 32242	TDA4800 (II)
7422	4822 209 31125	TEA2031A
7501	4822 130 63627	BU2527AF
7503	4822 130 42241	BU406
7504	5322 130 63002	IRF640
7505	4822 130 41782	BF422
7506	5322 130 63002	IRF640
7507	4822 130 41782	BF422
7508	5322 130 63002	IRF640
7509	4822 130 41782	BF422
7510	5322 130 63002	IRF640
7511	4822 130 41782	BF422
7512	5322 130 42755	BC847C
7513	4822 130 44503	BC547C
7514	4822 130 44104	BC328
7515	5322 130 42755	BC847C
7521	4822 130 42679	BUT11AF
7522	4822 130 42241	BU406
7523	5322 130 42755	BC847C
7524	5322 130 42755	BC847C
7526	5322 130 42756	BC857C
7561	5322 209 85913	MC7912CT

1102 Digital panel [B]

1102	4822 212 31542	digital panel complete
	4822 265 41435	connector 16P M601
	4822 265 31209	connector 3P M606
	4822 265 31058	connector 4P M605
	4822 265 31207	connector 5P M602
	4822 265 41422	connector 6P M610
	4822 265 41423	connector 10P M604
	5322 255 44217	connector 40P IC7621
	5322 255 40958	connector 8P IC7622
	4822 265 20563	connector 2P M608
	4822 267 31474	connector 2P M607
	4822 265 20683	connector 2P M611
	4822 265 10286	connector 2P M609
	4822 265 20684	connector 2P M614
1601	4822 242 81162	crystal 15MHz

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2602	4822 124 40246	4.7µF 20% 63V
2603	4822 122 33496	100nF 10% 63V
2604	4822 124 22681	47µF 20% 16V
2605	4822 126 10324	33pF 2% 63V
2606	4822 126 10324	33pF 2% 63V
2607	4822 122 32442	10nF 50V
2608	4822 122 32442	10nF 50V
2609	4822 122 32442	10nF 50V
2610	4822 122 32442	10nF 50V
2611	4822 124 22686	10µF 16V
2612	4822 124 22686	10µF 16V
2613	4822 122 33496	100nF 10% 63V
2614	4822 124 41659	4.7µF 20% 25V
2615	4822 124 22678	100µF 20% 16V
2616	4822 124 22686	10µF 16V
2617	4822 124 41659	4.7µF 20% 25V
2618	5322 122 31647	1nF 10% 63V
2619	5322 122 31647	1nF 10% 63V
2621	5322 122 31647	1nF 10% 63V
2622	5322 122 31647	1nF 10% 63V
2624	5322 122 31647	1nF 10% 63V
2631	4822 124 22336	100µF 20% 40V
2632	4822 124 22336	100µF 20% 40V
2633	4822 121 43696	100nF 100V
2634	4822 122 33496	100nF 10% 63V

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3601	4822 051 10103	10k 2% 0.25W
3602	4822 051 10101	100Ω 2% 0.25W
3603	4822 051 20222	2k2 5% 0.1W
3604	4822 051 20222	2k2 5% 0.1W
3605	4822 051 10102	1k 2% 0.25W
3606	4822 100 11319	4k7 potmeter
3607	4822 051 10223	22k 2% 0.25W
3608	4822 050 21001	100Ω 1% 0.6W
3609	4822 050 21001	100Ω 1% 0.6W
3610	4822 051 10472	4k7 2% 0.25W
3611	4822 051 10472	4k7 2% 0.25W
3612	4822 051 10103	10k 2% 0.25W
3613	4822 051 10103	10k 2% 0.25W
3614	4822 051 10103	10k 2% 0.25W
3615	4822 051 10103	10k 2% 0.25W
3616	4822 050 21003	10k 1% 0.6W
3617	4822 051 10479	47Ω 2% 0.25W
3618	4822 051 10561	560Ω 2% 0.25W
3619	4822 051 10101	100Ω 2% 0.25W
3620	4822 051 10821	820Ω 2% 0.25W
3621	4822 051 10821	820Ω 2% 0.25W
3622	4822 051 10821	820Ω 2% 0.25W
3623	4822 051 10821	820Ω 2% 0.25W
3624	4822 051 10821	820Ω 2% 0.25W
3625	4822 051 10821	820Ω 2% 0.25W
3626	5322 116 51882	0Ω
3627	4822 051 10103	10k 2% 0.25W
3628	4822 051 10103	10k 2% 0.25W
3629	4822 051 10682	6k8 2% 0.25W
3631	4822 051 10103	10k 2% 0.25W
3632	4822 051 10103	10k 2% 0.25W
3633	4822 051 10103	10k 2% 0.25W
3634	4822 051 10273	27k 2% 0.25W
3635	4822 051 10103	10k 2% 0.25W
3636	4822 051 10103	10k 2% 0.25W
3637	4822 100 11163	100k potmeter
3638	4822 051 10103	10k 2% 0.25W
3639	4822 051 10102	1k 2% 0.25W
3641	4822 051 10103	10k 2% 0.25W
3642	4822 051 10102	1k 2% 0.25W
3643	4822 051 10103	10k 2% 0.25W
3644	4822 100 11163	100k potmeter
3645	4822 051 10103	10k 2% 0.25W
3646	4822 051 20183	18k 5% 0.1W
3647	4822 051 10103	10k 2% 0.25W
3648	4822 051 10103	10k 2% 0.25W
3649	4822 051 10103	10k 2% 0.25W
3651	4822 051 10273	27k 2% 0.25W
3652	4822 051 10103	10k 2% 0.25W
3653	4822 051 10103	10k 2% 0.25W
3654	4822 051 10103	10k 2% 0.25W
3655	4822 051 10102	1k 2% 0.25W
3656	4822 051 10103	10k 2% 0.25W
3657	4822 051 10102	1k 2% 0.25W
3661	4822 051 10101	100Ω 2% 0.25W
3662	4822 051 10101	100Ω 2% 0.25W
3663	4822 051 10101	100Ω 2% 0.25W
3664	4822 051 10101	100Ω 2% 0.25W
3672	4822 051 10822	8k2 2% 0.25W
3673	4822 051 10103	10k 2% 0.25W
3674	4822 051 10563	56k 2% 0.25W
3675	4822 050 21003	10k 1% 0.6W
3676	4822 050 24701	470Ω 1% 0.6W
3677	4822 050 21001	100Ω 1% 0.6W
3678	4822 050 21001	100Ω 1% 0.6W
3679	4822 051 10103	10k 2% 0.25W
3681	4822 051 10103	10k 2% 0.25W
3682	4822 051 10223	22k 2% 0.25W

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5601	4822 157 63863	3.9µH 10%
5602	4822 157 63863	3.9µH 10%

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6601	4822 130 80446	BAS32L
6603	4822 130 80446	BAS32L
6604	4822 130 80446	BAS32L
6631	4822 130 31607	RGP10D
6632	4822 130 31607	RGP10D

Spare parts list

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7621	4822 209 52651	EPROM 7621+7622
7622		see 7621
7623	5322 130 60068	BC558C
7624	4822 209 80587	LM324N
7625	4822 209 80587	LM324N
7631	5322 209 86234	NE5532N
7632	5322 130 44779	BC338-40
7633	4822 130 41715	BC328-40
7635	5322 130 42756	BC857C

1103 video panel [A]

1103	4822 212 31543	video panel complete
	4822 255 70263	CRT socket
	4822 265 20366	connector M705
	4822 265 31208	connector 3P M708
	4822 265 10274	connector F701,702,703
	4822 265 41421	connector 11P M707

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2701	4822 124 42171	22μF 25V
2702	4822 124 42171	22μF 25V
2703	4822 124 42171	22μF 25V
2704	4822 122 33496	100nF 10% 63V
2705	4822 122 33496	100nF 10% 63V
2706	4822 122 33496	100nF 10% 63V
2707	4822 122 33496	100nF 10% 63V
2708	4822 122 33496	100nF 10% 63V
2709	4822 122 33496	100nF 10% 63V
2713	4822 122 33496	100nF 10% 63V
2714	4822 122 33496	100nF 10% 63V
2715	4822 122 33496	100nF 10% 63V
2716	4822 124 80131	100μF 20% 25V
2717	4822 124 80131	100μF 20% 25V
2718	4822 124 80131	100μF 20% 25V
2719	4822 122 33496	100nF 10% 63V
2720	4822 122 33496	100nF 10% 63V
2721	4822 122 33496	100nF 10% 63V
2722	4822 122 33496	100nF 10% 63V
2723	4822 122 33496	100nF 10% 63V
2724	4822 122 33496	100nF 10% 63V
2725	4822 122 33496	100nF 10% 63V
2726	4822 122 33496	100nF 10% 63V
2727	4822 122 33496	100nF 10% 63V
2728	4822 122 33496	100nF 10% 63V
2729	4822 122 33496	100nF 10% 63V
2730	4822 122 33496	100nF 10% 63V
2731	4822 122 31644	2.2nF 10% 63V
2732	4822 122 31644	2.2nF 10% 63V
2733	4822 122 31644	2.2nF 10% 63V
2734	4822 122 33496	100nF 10% 63V
2735	4822 122 33496	100nF 10% 63V
2736	4822 122 33496	100nF 10% 63V
2737	4822 126 10324	33pF 2% 63V
2738	4822 122 31772	47pF 2% 63V
2739	4822 126 10324	33pF 2% 63V
2740	4822 122 31772	47pF 2% 63V
2741	4822 126 10324	33pF 2% 63V
2742	4822 122 31772	47pF 2% 63V
2743	4822 124 80105	22μF 20% 100V
2744	4822 124 80606	1μF 20% 160V
2745	4822 124 80606	1μF 20% 160V
2746	4822 124 80606	1μF 20% 160V
2747	4822 124 80105	22μF 20% 100V
2748	4822 124 80105	22μF 20% 100V
2749	4822 124 80105	22μF 20% 100V
2750	4822 122 32707	3.3nF 10%B 500V
2751	4822 122 33968	1nF 5% 500V
2752	4822 126 12651	10nF 20% 2K
2753	4822 124 80105	22μF 20% 100V
2754	4822 124 80531	10μF 20% 250V
2755	4822 124 80104	10μF 20% 16V
2756	4822 122 33496	100nF 10% 63V
2764	4822 252 60127	DSP201M
2765	4822 252 60127	DSP201M
2766	4822 252 60127	DSP201M
2767	4822 122 32442	10nF 50V
2768	4822 122 32442	10nF 50V
2769	4822 122 32442	10nF 50V
2770	4822 122 32707	3.3nF 10%B 500V
2771	4822 122 33968	1nF 5% 500V
2772	4822 122 32442	10nF 50V
2773	4822 122 32442	10nF 50V
2774	4822 122 32442	10nF 50V
2775	4822 122 32442	10nF 50V
2776	4822 122 32442	10nF 50V
2779	4822 122 32442	10nF 50V
2781	4822 122 31766	120pF 2% 63V
2782	4822 051 10008	0R00 5% 0.25W

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3701	4822 051 10759	75Ω 2% 0.25W
3702	4822 051 10759	75Ω 2% 0.25W
3703	4822 051 10759	75Ω 2% 0.25W
3704	4822 051 10103	10k 2% 0.25W
3705	4822 051 10103	10k 2% 0.25W
3706	4822 051 10103	10k 2% 0.25W
3707	4822 051 10221	220Ω 2% 0.25W
3708	4822 051 10221	220Ω 2% 0.25W
3709	4822 051 10221	220Ω 2% 0.25W
3710	4822 051 10279	27Ω 2% 0.25W
3711	4822 051 10279	27Ω 2% 0.25W
3712	4822 051 10279	27Ω 2% 0.25W
3713	4822 116 80678	10k 1%
3714	4822 051 10331	330Ω 2% 0.25W
3715	4822 051 10331	330Ω 2% 0.25W
3716	4822 051 10331	330Ω 2% 0.25W
3717	4822 051 10479	47Ω 2% 0.25W
3718	4822 051 10479	47Ω 2% 0.25W
3719	4822 051 10479	47Ω 2% 0.25W
3720	4822 051 10103	10k 2% 0.25W
3721	4822 051 10103	10k 2% 0.25W
3722	4822 051 10103	10k 2% 0.25W
3723	4822 051 10182	1k8 2% 0.25W
3724	4822 051 10182	1k8 2% 0.25W
3725	4822 051 10182	1k8 2% 0.25W
3726	4822 051 10271	270Ω 2% 0.25W
3727	4822 051 10271	270Ω 2% 0.25W
3728	4822 051 10271	270Ω 2% 0.25W
3729	4822 051 10229	22Ω 2% 0.25W
3730	4822 051 10229	22Ω 2% 0.25W
3731	4822 051 10229	22Ω 2% 0.25W
3733	4822 051 10331	330Ω 2% 0.25W
3735	4822 051 10331	330Ω 2% 0.25W
3736	4822 051 10331	330Ω 2% 0.25W
3737	4822 051 10109	10Ω 2% 0.25W
3738	4822 051 10109	10Ω 2% 0.25W
3739	4822 051 10109	10Ω 2% 0.25W
3740	4822 051 10279	27Ω 2% 0.25W
3741	4822 051 10109	10Ω 2% 0.25W
3742	4822 051 10109	10Ω 2% 0.25W
3743	4822 050 27509	75Ω 1% 0.6W
3744	4822 050 27509	75Ω 1% 0.6W
3746	4822 050 27509	75Ω 1% 0.6W
3747	4822 050 27509	75Ω 1% 0.6W
3749	4822 050 27509	75Ω 1% 0.6W
3750	4822 050 27509	75Ω 1% 0.6W
3752	4822 051 10272	2k7 2% 0.25W
3753	4822 051 10272	2k7 2% 0.25W
3754	4822 051 10272	2k7 2% 0.25W
3755	4822 117 10059	15k 3% 1W
3756	4822 051 10681	680Ω 2% 0.25W
3757	4822 117 10059	15k 3% 1W
3758	4822 051 10681	680Ω 2% 0.25W
3759	4822 117 10059	15k 3% 1W
3760	4822 051 10681	680Ω 2% 0.25W
3765	4822 100 11319	4k7 potmeter
3766	4822 051 10008	0Ω 5% 0.25W
3767	4822 050 23303	33k 1% 0.6W
3768	4822 051 10151	150Ω 2% 0.25W
3769	4822 050 23303	33k 1% 0.6W
3770	4822 051 10151	150Ω 2% 0.25W
3771	4822 050 23303	33k 1% 0.6W
3772	4822 051 10151	150Ω 2% 0.25W
3773	4822 051 10105	1M 5% 0.25W
3774	4822 051 10105	1M 5% 0.25W
3775	4822 051 10105	1M 5% 0.25W
3776	4822 116 52195	47Ω 5% 0.5W
3777	4822 116 52195	47Ω 5% 0.5W
3778	4822 116 52195	47Ω 5% 0.5W
3779	4822 050 21502	1k5 1% 0.6W
3780	4822 116 80548	15k 5% 0.5W
3781	4822 100 11212	2k2 potmeter
3782	4822 100 11212	2k2 potmeter
3783	4822 100 11212	2k2 potmeter
3784	4822 050 11002	1k 1% 0.4W
3785	4822 050 11002	1k 1% 0.4W
3786	4822 050 11002	1k 1% 0.4W
3787	4822 051 10682	6k8 2% 0.25W
3788	4822 051 10682	6k8 2% 0.25W
3789	4822 051 10682	6k8 2% 0.25W
3791	4822 100 11212	2k2 potmeter
3792	4822 100 11212	2k2 potmeter
3793	4822 051 10152	1k5 2% 0.25W
3794	4822 051 10392	3k9 2% 0.25W
3795	4822 051 10392	3k9 2% 0.25W
3796	4822 051 10392	3k9 2% 0.25W
3797	4822 050 26801	680Ω 1% 0.6W
3798	4822 116 52186	22Ω 5% 0.5W
3802	4822 051 10271	270Ω 2% 0.25W
3804	4822 051 51201	120Ω 1% 0.125W
3806	4822 051 51201	120Ω 1% 0.125W
3811	4822 116 90833	150Ω 5%
3812	4822 116 90833	150Ω 5%
3813	4822 116 90833	150Ω 5%
3821	4822 116 90833	150Ω 5%
3822	4822 116 90833	150Ω 5%
3823	4822 116 90833	150Ω 5%
3831	4822 116 90833	150Ω 5%
3832	4822 116 90833	150Ω 5%
3833	4822 116 90833	150Ω 5%
3834	4822 050 12002	2k 1% 0.4W
3835	4822 051 10102	1k 2% 0.25W
3836	4822 051 10102	1k 2% 0.25W
3837	4822 051 10102	1k 2% 0.25W
3838	4822 051 20222	2k2 5% 0.1W
3841	4822 051 10331	330Ω 2% 0.25W
3842	4822 051 10331	330Ω 2% 0.25W
3843	4822 051 10331	330Ω 2% 0.25W
3852	5322 116 51882	0Ω
3853	5322 116 51882	0Ω
3856	5322 116 51882	0Ω

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5704	4822 157 63863	3.9μH 10%
5705	4822 157 63863	3.9μH 10%
5706	4822 157 63863	3.9μH 10%
5707	4822 157 70603	COIL
5708	4822 157 70603	COIL
5709	4822 157 70603	COIL
5710	4822 157 63863	3.9μH 10%
5711	4822 157 63863	3.9μH 10%
5712	4822 157 63863	3.9μH 10%
5713	4822 152 20587	7.5μH
5717	4822 157 63863	3.9μH 10%
5718	4822 157 63863	3.9μH 10%

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6701	4822 130 80446	BAS32L
6702	4822 130 80446	BAS32L
6703	4822 130 80446	BAS32L
6705	4822 130 30842	BAV21
6706	4822 130 31981	BZX79-C3V9
6711	4822 130 30842	BAV21
6712	4822 130 30842	BAV21
6713	4822 130 30842	BAV21
6714	4822 130 30842	BAV21
6715	4822 130 30842	BAV21
6716	4822 130 30842	BAV21
6720	4822 130 42489	BYD33G

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7701	4822 130 62279	2SC3953E
7702	4822 130 62278	2SC3950E
7703	4822 130 62279	2SC3953E
7704	4822 130 62278	2SC3950E
7705	4822 130 62279	2SC3953E
7706	4822 130 62278	2SC3950E
7711	4822 130 41646	BF423
7712	4822 130 41782	BF422
7713	4822 130 41646	BF423
7714	4822 130 41782	BF422
7715	4822 130 41646	BF423
7716	4822 130 41782	BF422
7720	5322 130 42755	BC847C
7721	4822 130 41594	PH2369
7722	4822 130 41594	PH2369
7723	4822 130 41594	PH2369
7731	4822 209 63873	LM1201N
7732	4822 209 63873	LM1201N
7733	4822 209 63873	LM1201N

1104 input terminal panel [A]

1104	4822 212 31529	input terminal panel
	4822 265 41419	connector 6P M223
	4822 265 31208	connector 3P M222
	4822 267 41002	connector F232
	4822 277 21595	slide switch
	4822 267 51145	connector 15P F251
	4822 267 10281	BNC connector

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2201	4822 122 33496	100nF 10% 63V
2202	4822 122 33496	100nF 10% 63V
2207	4822 124 80106	47μF 20% 16V
2208	4822 124 80106	47μF 20% 16V
2209	4822 124 80106	47μF 20% 16V
2210	4822 124 80833	100μF 20% 16V
2211	4822 124 80106	47μF 20% 16V
2212	4822 124 80106	47μF 20% 16V
2213	4822 124 80964	47μF 20% 16V
2214	4822 122 31971	10pF 2% 63V
2215	4822 126 10324	33pF 2% 63V
2216	4822 122 31971	10pF 2% 63V
2217	4822 122 33496	100nF 10% 63V
2218	4822 124 80833	100μF 20% 16V
2220	4822 124 80106	47μF 20% 16V
2221	4822 122 33496	100nF 10% 63V
2222	4822 122 33496	100nF 10% 63V
2223	4822 122 33496	100nF 10% 63V
2224	4822 122 33496	100nF 10% 63V
2225	4822 122 33496	100nF 10% 63V
2226	4822 122 33496	100nF 10% 63V
2228	4822 124 80833	100μF 20% 16V
2229	4822 124 80106	47μF 20% 16V
2231	4822 122 31767	150pF 2% 63V
2232	4822 122 31767	150pF 2% 63V
2233	4822 122 31767	150pF 2% 63V
2234	4822 122 31767	150pF 2% 63V
2235	4822 124 40246	4.7μF 20% 63V

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3210	5322 116 51882	0Ω
3213	4822 051 10333	33k 2% 0.25W
3214	4822 051 10472	4k7 2% 0.25W
3215	4822 051 10124	120k 2% 0.25W
3222	4822 051 10759	75Ω 2% 0.25W
3223	4822 051 10759	75Ω 2% 0.25W
3224	4822 051 10759	75Ω 2% 0.25W
3225	4822 051 10822	8k2 2% 0.25W
3226	4822 050 28202	8k2 1% 0.6W
3227	4822 051 10822	8k2 2% 0.25W
3228	4822 051 10822	8k2 2% 0.25W
3229	4822 051 10822	8k2 2% 0.25W
3230	4822 051 10822	8k2 2% 0.25W
3231	4822 050 16802	6k8 1% 0.4W
3232	4822 050 16802	6k8 1% 0.4W
3233	4822 050 16802	6k8 1% 0.4W
3234	4822 051 10682	6k8 2% 0.25W
3235	4822 050 16802	6k8 1% 0.4W
3236	4822 050 16802	6k8 1% 0.4W
3237	4822 051 10681	680Ω 2% 0.25W
3238	4822 051 10681	680Ω 2% 0.25W
3239	4822 051 10103	10k 2% 0.25W
3240	4822 051 10223	22k 2% 0.25W
3241	4822 051 10154	150k 2% 0.25W
3242	4822 051 10124	120k 2% 0.25W
3243	4822 051 10759	75Ω 2% 0.25W
3245	4822 051 10759	75Ω 2% 0.25W
3247	4822 051 10759	75Ω 2% 0.25W
3249	4822 051 10471	470Ω 2% 0.25W
3250	4822 051 10103	10k 2% 0.25W
3251	4822 116 52215	220Ω 5% 0.5W
3256	4822 051 10153	15k 2% 0.25W
3257	4822 051 10223	22k 2% 0.25W
3258	4822 051 10153	15k 2% 0.25W
3259	4822 051 10223	22k 2% 0.25W
3261	4822 051 10101	100Ω 2% 0.25W
3262	4822 050 21001	100Ω 1% 0.6W
3263	4822 050 21001	100Ω 1% 0.6W
3264	4822 050 21001	100Ω 1% 0.6W
3265	4822 050 21001	100Ω 1% 0.6W
3266	4822 050 21001	100Ω 1% 0.6W
3267	4822 051 10103	10k 2% 0.25W
3268	4822 051 10103	10k 2% 0.25W
3269	4822 051 10103	10k 2% 0.25W
3270	4822 051 10103	10k 2% 0.25W
3271	4822 051 10221	220Ω 2% 0.25W
3272	4822 051 10221	220Ω 2% 0.25W
3273	4822 051 10221	220Ω 2% 0.25W
3274	4822 051 10221	220Ω 2% 0.25W
3275	4822 051 10473	47k 2% 0.25W
3276	4822 051 10223	22k 2% 0.25W
3277	4822 051 10102	1k 2% 0.25W
3279	4822 051 10473	47k 2% 0.25W
3280	4822 051 10561	560Ω 2% 0.25W
3281	4822 051 10562	5k6 2% 0.25W
3283	4822 051 10152	1k5 2% 0.25W
3284	4822 051 10473	47k 2% 0.25W
3285	4822 051 10223	22k 2% 0.25W
3286	4822 051 10102	1k 2% 0.25W
3287	4822 116 52215	220Ω 5% 0.5W
3288	4822 050 28201	820Ω 1% 0.6W
3289	4822 051 10821	820Ω 2% 0.25W
3290	5322 116 51882	0Ω
3291	5322 116 51882	0Ω
3292	4822 051 10008	0Ω
3293	5322 116 51882	0Ω
3294	5322 116 51882	0Ω
3295	5322 116 51882	0Ω
3296	5322 116 51882	0Ω
3297	5322 116 51882	0Ω
3298	5322 116 51882	0Ω
3299	5322 116 51882	0Ω

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5201	4822 157 63863	3.9μH 10%
5204	4822 157 63863	3.9μH 10%
5205	4822 526 10522	bead

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6201	4822 130 80446	BAS32L
6202	4822 130 80446	BAS32L
6203	4822 130 80446	BAS32L
6204	4822 130 80446	BAS32L
6205	4822 130 80446	BAS32L

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7201	4822 130 41594	PH2369
7202	4822 130 41594	PH2369
7203	4822 130 41594	PH2369
7204	4822 130 41594	PH2369
7205	4822 130 41594	PH2369
7206	4822 130 41594	PH2369
7207	5322 209 10576	HEF4053BP
7208	5322 130 42756	BC857C
7209	4822 130 41715	BC328-40
7210	4822 130 41715	BC328-40
7211	4822 130 44503	BC547C
7212	4822 130 41594	PH2369
7213	4822 130 41594	PH2369
7214	4822 130 41594	PH2369
7215	5322 130 42755	BC847C
7216	5322 130 42755	BC847C

1105 EMI panel [D]

1105	4822 212 31544	EMI panel complete
	4822 265 30891	connector 2P M101
	4822 265 20564	connector 2P M102

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2101▲	4822 121 70205	680nF 20% 250V
2102▲	4822 122 33535	4.7nF 20% 400V
2103▲	4822 122 33535	4.7nF 20% 400V
2104▲	4822 122 33652	2.2nF 20% 400V
2105▲	4822 122 33652	2.2nF 20% 400V

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3101	4822 053 21334	330k 5% 0.5W

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5101▲	4822 157 10292	14mH

1106 control panel [B]

1106	4822 212 31527	control panel
	4822 276 13249	switch

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3665	4822 051 10103	10k 2% 0.25W
3666	4822 051 10472	4k7 2% 0.25W
3667	4822 051 20222	2k2 5% 0.1W
3668	4822 051 10392	3k9 2% 0.25W
3669	4822 100 20821	10k potmeter
3671	4822 100 20817	10k potmeter1107

1107 LED panel [E]

6170	4822 130 83668	LED LTL32D8YG

1108 display panel [B]

1200	4822 130 91093	display

1114 power down panel [E]

1114	4822 212 31545	power down panel
	4822 265 31196	connector 3P M801
	4822 265 31207	connector 5P M811
	4822 265 31209	connector 3P M813
	4822 265 10286	connector 2P M812
	4822 265 20563	connector 2P M814
	4822 267 31474	connector 2P

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2801	5322 122 32331	1nF 10% 100V
2802	4822 126 10366	33nF 20% 50V
2803	4822 126 10757	22nF 20% 50V
2804	4822 124 80524	47μF 20% 35V
2805	4822 122 32442	10nF 50V
2806	4822 122 31727	470pF 2% 63V
2807	5322 122 32331	1nF 10% 100V
2808	4822 121 43695	47nF 10% 100V
2811	4822 126 13202	220pF 10% 2KV
2812	4822 122 33646	470pF 10% 500V
2813	4822 122 33646	470pF 10% 500V
2814	4822 124 40198	470μF 20% 16V
2815	4822 124 22678	100μF 20% 16V
2816	4822 124 40198	470μF 20% 16V
2818	4822 122 10377	4.7nF 10% 10KV
2819	4822 122 33496	100nF 10% 63V
2823	4822 122 32891	68nF 10% 63V
2824	4822 124 22669	1μF 20% 50V
2827	4822 122 33496	100nF 10% 63V
2829	4822 122 33496	100nF 10% 63V
2831	4822 126 11456	330nF 10% 63V
2832	4822 121 43697	330nF 10% 100V
2833	4822 122 32442	10nF 50V
2834	4822 122 33496	100nF 10% 63V
2835	4822 122 33496	100nF 10% 63V
2836	4822 124 80332	3.3μF 20% 25V
2837	4822 124 80332	3.3μF 20% 25V
2838	4822 122 33496	100nF 10% 63V

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3801	4822 050 23901	390Ω 1% 0.6W
3802	4822 117 11136	82k 5% 1W
3803	4822 117 11136	82k 5% 1W
3804	4822 050 21502	1k5 1% 0.6W
3805	4822 050 11204	120k 1% 0.4W
3806	4822 050 22203	22k 1% 0.6W
3807	4822 100 11319	4k7 potmeter
3808	4822 116 52289	5k6 5% 0.5W
3809	4822 116 52217	270Ω 5% 0.5W
3810	4822 116 52215	220Ω 5% 0.5W
3811	4822 051 10334	330k 2% 0.25W
3812	4822 050 11002	1k 1% 0.4W
3815	4822 050 21003	10k 1% 0.6W
3816	4822 050 23308	3Ω3 1% 0.6W
3817	4822 050 24702	4k7 1% 0.6W
3818	4822 050 24702	4k7 1% 0.6W
3821	4822 050 23302	3k3 1% 0.6W
3822	4822 050 21801	180Ω 1% 0.6W
3823	4822 116 52234	100k 5% 0.5W
3824	4822 116 83973	100Ω 5% 1W
3826▲	4822 052 10229	22Ω 5% 0.33W
3828	4822 050 12702	2k7 1% 0.4W
3831	4822 051 10272	2k7 2% 0.25W
3832	4822 051 10153	15k 2% 0.25W
3833	4822 051 10682	6k8 2% 0.25W
3834	4822 051 10472	4k7 2% 0.25W
3835	4822 051 10472	4k7 2% 0.25W
3837	4822 051 10682	6k8 2% 0.25W
3838	4822 051 10472	4k7 2% 0.25W
3839	4822 051 10472	4k7 2% 0.25W
3842	4822 051 10471	470Ω 2% 0.25W
3843	4822 051 10473	47k 2% 0.25W
3844	4822 051 10103	10k 2% 0.25W
3845	4822 051 10104	100k 2% 0.25W
3846	4822 051 10225	2M2
3847	4822 051 10225	2M2
3848	4822 051 10224	220k 2% 0.25W
3851	4822 051 10184	180k 2% 0.25W
3852	4822 051 10203	20k 2% 0.25W
3853	4822 051 10103	10k 2% 0.25W
3854	4822 051 10103	10k 2% 0.25W
3855	4822 051 10225	2M2
3856	4822 051 10225	2M2
3857	4822 050 24703	47k 1% 0.6W
3861	4822 051 10473	47k 2% 0.25W
3862	4822 051 10473	47k 2% 0.25W
3863	4822 051 10473	47k 2% 0.25W
3864	4822 051 10103	10k 2% 0.25W
3865	4822 051 10472	4k7 2% 0.25W
3866	4822 050 21003	10k 1% 0.6W
3867	4822 051 10102	1k 2% 0.25W
3868	4822 051 10102	1k 2% 0.25W
3869	4822 051 10472	4k7 2% 0.25W

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5251▲	4822 146 31362	mains transformer

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6801	4822 130 31607	RGP10D
6802	4822 130 34499	BZX79-C20
6803	4822 130 30621	1N4148
6804	4822 130 30621	1N4148
6806	4822 130 31607	RGP10D
6807	4822 130 31607	RGP10D
6808	4822 130 31393	RGP10J
6813	4822 130 31438	1N4001
6814	4822 130 31607	RGP10D
6815	4822 130 34233	BZX79-C5V1
6816	4822 130 31607	RGP10D
6817	4822 130 31438	1N4001
6818	4822 130 80446	BAS32L
6819	4822 130 80446	BAS32L
6821	4822 130 80446	BAS32L
6826	4822 130 80446	BAS32L
6827	4822 130 80446	BAS32L
6828	4822 130 80446	BAS32L
6829	4822 130 30621	1N4148

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7801▲	4822 130 80908	CNX62A
7802	4822 130 41053	BC639
7803	4822 130 42231	BC557C
7804	5322 130 63529	BUZ80A
7805	4822 130 41087	BC638
7806	4822 130 44503	BC547C
7807	4822 209 33432	UC3842BN
7808	5322 130 42755	BC847C
7811	4822 209 73852	PMBT2369
7812	4822 209 73852	PMBT2369
7813	4822 209 73852	PMBT2369
7814	4822 209 10265	HEF4070BP
7815	4822 130 44503	BC547C
7816	4822 130 44503	BC547C
7817	5322 209 10422	HEF4538BP
7818	5322 130 42755	BC847C
7819	4822 209 10318	HEF40106BP
7821	4822 130 44503	BC547C
7822	5322 130 42755	BC847C
7823	4822 130 44503	BC547C
7824	5322 130 42755	BC847C
7825	5322 130 42756	BC857C